

Hitchcock's **Machine Tool Blue Book**

DECEMBER, 1929

TWENTY-FOURTH YEAR

Our Latest Type Multi-Duty Radial Drill



**All Ball Bearing
Sizes 3 to 8 Ft.**

The Dresses Machine Tool Co.
CINCINNATI, OHIO

A New Ship With An Old Pilot and Crew



Twelve years ago the writer took the helm of the Hill-Curtis Company. It's a fair statement to say that today we occupy places of leadership in three distinctly new lines of

Polishing, Grinding and Sawing Machinery.

It seems fitting that we adopt the name of

Hammond Machinery Builders

to better express our new products and the writer's ownership and management.

This name signifies no change in either organization or policies. The Pilot and Crew are pleased at this opportunity of thanking our many friends for having made our advancement possible, and for our fine new home. I promise that all of us will always be *doing a little more than you expect*—that's our policy.

Sincerely,

President

Hammond Machinery Builders

Grinding, Polishing & Sawing Machinery

KALAMAZOO, MICHIGAN

Formerly

 GRINDERS — All Sizes Electric & Belted	HILL-CURTIS GRINDING & POLISHING MACHINERY MOTOR DRIVEN & BELT DRIVEN — TIMKEN ROLLER OR BALL BEARING HILL-CURTIS CO. KALAMAZOO, MICH.	 POLISHERS — All Sizes Electric & Belted
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Hitchcock's Machine Tool Blue Book

**Selected
Circulation**

**25,000
Monthly**

DECEMBER, 1929

TWENTY-FOURTH YEAR

THE selective method employed by the publishers of the "Blue Book" enables them to concentrate its heaviest circulation in the richest markets—which they do, of course, just as you would do if you were in their place.

This gives to its advertisers the opportunity to focus their efforts upon those who are responsible for the metal-working equipment in thousands of the larger plants.

It is practical advertising—nothing else. But it is that, and all that.

Rates upon application

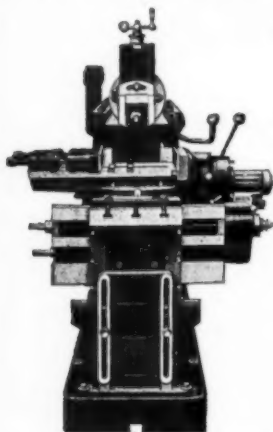
Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

New "American" Auto-Oiled Shaper



== 12 ==

Points of Superiority

- Tremendous Cutting Power
- Unparalleled Rigidity
- Permanent Accuracy
- Automatic Forced Lubrication
- Multiple Splined Shafts
- Timken Roller Bearings
- Multiple Disc Clutch and Brake
- Helical Gears—Alloy Steel (Hardened)
- "V"-Type Ram
- Improved Table Support
- Tu-Piece Bull Wheel
- Centralized Control

Meets Today's Demands

Industry is speeding up all along the line—higher cutting speed—greater perfection of automatic machinery—stabilizing of production—simplification—etc. "American" designs have kept abreast of this tempo. The New American "Auto-Oiled" Shaper has every convenience to speed up the natural working pace of the operator. Modern in every particular, it will perform all classes of its work at the highest speeds and coarsest feeds practicable, producing at the same time a finished product of dependable accuracy. Forward-looking design and positive, foolproof lubrication insure a long accurate operating life with the minimum of depreciation.

Write for illustrated booklet and see how Shaper design has been revolutionized in the New American "Auto-Oiled" Shaper.

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS

Get the most out of your Production Equipment by keeping Cutters sharp!

Manufacturers everywhere find that the Brown & Sharpe No. 3 Universal and Cutter Grinding Machine helps them increase the output from the machines in their production departments.



Remember these

features—

**Moderate Cost
Fast Operation
Small Floor Space
Easy To Operate**

—an economical investment in lowering tool and cutter costs.

*Specifications will be
gladly sent at your
request.*

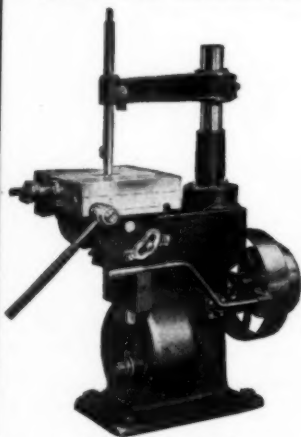
BROWN & SHARPE

BROWN & SHARPE MFG. CO.



PROVIDENCE, R. I., U. S. A.

BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

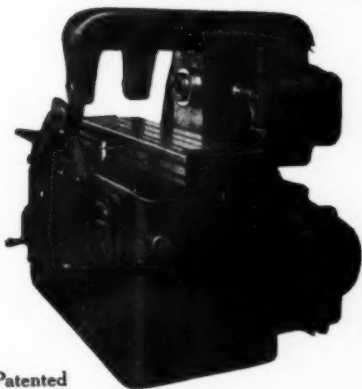
1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyseats).
4. Simplicity In Operation.

Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*

The New 3-24 CINCINNATI HYDROMATIC



Patented

Now—for the first time you have available a *standard milling* machine in this smaller size, so designed and constructed to give you the many features and proven advantages of the Cincinnati Hydromatics with Locked Hydraulic Feed. You get complete automatic dog controlled intermittent table feed—full automatic table working cycles—any feed from 0" to 40"—smooth efficient rigid spindle drive—300" per minute rapid traverse—improved chip handling and coolant control and many other exclusive features. Automatic controlled variable feed, positive stop and delayed trip attachments are also available.

Consult our Engineering Service Department for dependable counsel on the application and use of this new machine with 24" table travel. For greater profits use Cincinnati Hydromatics.

The Cincinnati Milling Machine Co.
Cincinnati, Ohio, U. S. A.

Another Reason for Choosing Monarch Lathes



Triple-Tested Accuracy

WHILE Monarch Lathes are being assembled, each part is carefully tested to make certain that it is accurate and in perfect adjustment. Then, when the lathe is ready to leave the assembly department, it is given *three* complete and final inspections! A record sheet of the last test is supplied to the purchaser. It shows the actual condition of the lathe at the time of shipment and is a guarantee of accuracy.

Alignment tests are carefully made. The limit of error allowed is .001". Test bars from 18" to 24" are used. Leadscrews are tested on the Hartness Screw Thread Comparator made especially for this work. They are further tested for accuracy on a Zeiss lead-testing machine that records errors of .0001".

Two inspectors are required to stamp their initials on the end of the bed of each lathe when their work is completed and the lathe has been found to be in perfect adjustment.

Write for new bulletin
**"Additional Reasons Why Monarch Lathes
 Should Be Your Choice"**.

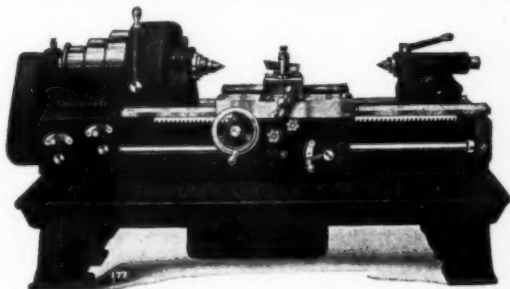
The Monarch Machine Tool Co., Sidney, O.
 New York Sales Office: 857 Graybar Bldg.

Monarch Lathes

Helical Gears - Timken Bearings
SMOOTHER...QUIETER...MORE POWERFUL



Cincinnati Maxi-Production Lathe



swings 17", 19" or 21" and supplied in 2 foot lengths of bed from 6 foot up.

SPINDLE has 2 $\frac{3}{8}$ " hole throughout and is mounted in **TIMKEN ROLLER BEARINGS**.

LEVER on headstock is arranged to start and stop lathe instantly through a positive friction clutch and brake.

FEED BOX covers an unlimited range from very coarse to the finest feeds.

SPEED of 1000 R. P. M. or even more for best results with the new tungsten-carbide tools. This equipment with **Quick Acting Tail Stock** and **Belt Shifter** gives quickest operation.

WE TOOL UP COMPLETE FOR YOUR JOBS

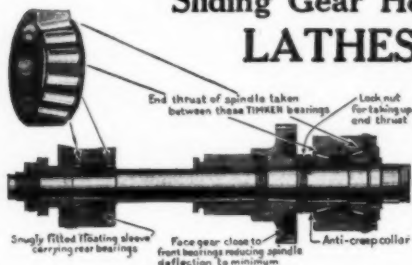
Specialists 25 Years

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio

Features!

**NEW
MODEL**

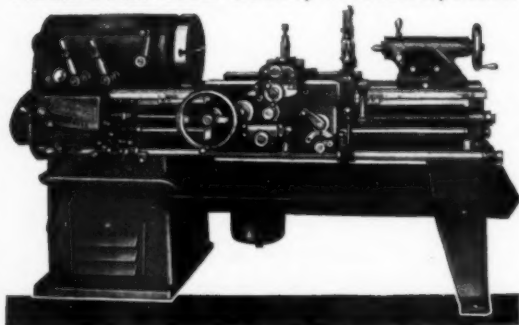
REED-PRENTICE Sliding Gear Head LATHES

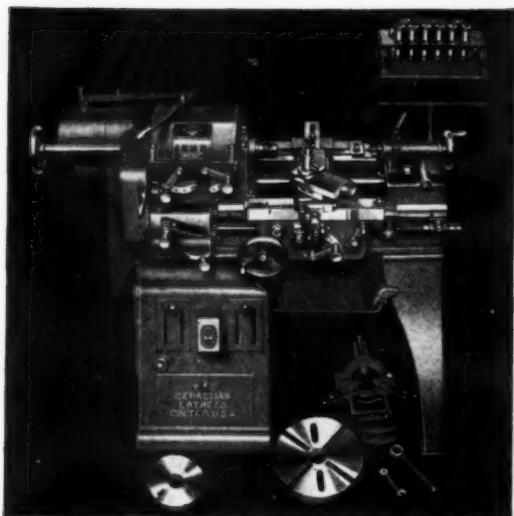


Four Bearing Precision TIMKEN Spindle Mounting.
Headstock gearing of SAE 3250 electric furnace steel.
Spindle of SAE 6140 heat treated chrome Vanadium Steel.
Cross feed screw heat treated chrome Vanadium Steel with double ball thrust, etc.

Our circulars detail complete construction features—send for them.

REED-PRENTICE CORP., Worcester, Mass.





Here Is Really Low Up-Keep For You

We say that this 11" Gold Seal Lathe is practically unbreakable and our repair experience proves it.

We shipped the first one of these lathes March 28th, 1928—Since that time these lathes have been installed in Schools, Machine Shops, Tool Rooms, Experimental Laboratories, Aviation Fields—and in fact in every line of work.

**There has not been a single charge on our books
for repairs on these lathes during all that time.**

The Sebastian Lathe Co.

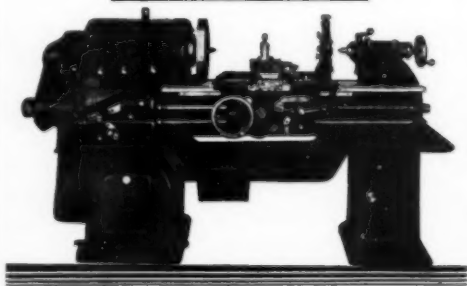
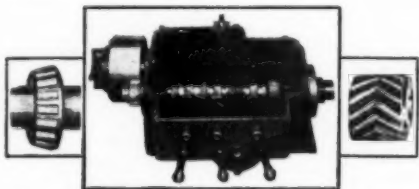
1313 Culvert Street,

Cincinnati, Ohio

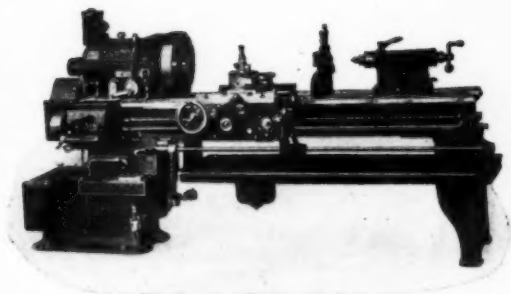
TRITROL

is a new conception of speedy, accurate lathe control for all jobs demanding hair-line dependability.

Here is a new lathe governed by the same high standards of workmanship that has made other Sidney products famous.



The Sidney Machine Tool Co.
SIDNEY, OHIO



Bradford Precision "All Geared" Lathes

"Exclusive Advantages"

Extremely heavy shock absorbing gear drive—Only heavy slow running gears in Head—our "All Geared Drive" is 3 times as heavy as the usual "Geared Head" drive—absence of gear and chatter marks—longer life of cutting tool—mechanical control (no electric control), to "Start"—"Stop"—"Reverse"—"Speed Change" or "Brake."

An "All Geared Bradford" will produce better Lathe work and more of it.



Bradford Unit Type Drilling and Tapping Heads

Self-contained, motor driven units, designed for one or more heads to be built into one unit *at any angle from horizontal to vertical.* Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

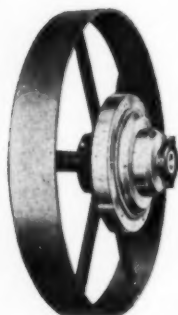
The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

A Clickety Bang— and a Bangety Click—



*All day long, it is
singing this song—*

AND it's there—(on a box nailing machine) with the punch, with the power, with the easy make, instant break, and the dragfree idling.

The Conway Disc is a Splendid Clutch

The gasoline locomotive, the punch press, the power shovel, the mower, the hoist, the oil rig, the pump, the conveyor, the ditcher, all have drives, the functioning of which can be enhanced many fold by installing the Conway Disc Clutch where the effort meets the work.

Only its capable functioning can speak eloquently enough to describe its capability and smoothness of operation.

Order one and put it to work in your conditions, under your own scrutiny. Its superior performance will win your decision to adopt it.

At it since 1904—Our Engineering Department has a carload of clutch experience. It's at your disposal.

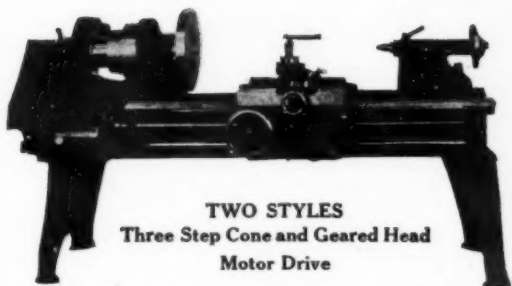
—WRITE—

The Conway Clutch Co.

West 6th Street,

Cincinnati, Ohio

"Incorporate Dependability into Your Product"



TWO STYLES

**Three Step Cone and Geared Head
Motor Drive**

16"x6' New Design \$575.00
Weight 2000 lbs.

18"x8' New Design \$635.00
Weight 2300 lbs.

3-step cone double back gear, quick change gear, graduated compound rest, chasing dial, steady rest, lead screw and feed rod, tool post, centers, countershaft and wrenches, ready to run.

A lathe in the **INEXPENSIVE** class, for your shop equal to, in all respects, lathes of much higher price, having all their features:

**Alignment and Precision
Speed in Production
Ease of Operation
Ability on all Work
Low Cost of Upkeep
INEXPENSIVE COST TO YOU**

Made in 16" and 18" swing from 6' to 18' length of bed. Either 3-step cone belt drive or All Geared 9-Speed Drive Head for 2 H. P. Motor.

*Write us for full information and **PRICES***

The Rahn-Larmon Co.
2943 Spring Grove Ave., Cincinnati, O.

Built to Measure

Up to modern production requirements, CLEVELAND OPEN SIDE PLANERS give MORE years of faster and better productivity. The CLEVELAND is accurate and easy to control. All levers are reached from one position—saving the operator many extra steps and conserving his energy. The entire driving mechanism is above floor level—no pit or special foundation is required. Send for the complete story.

The Cleveland Planer Company

Established 1900

3148 Superior Ave.,

Cleveland, Ohio

*Send
for
Folder*

Over

1100

Installations

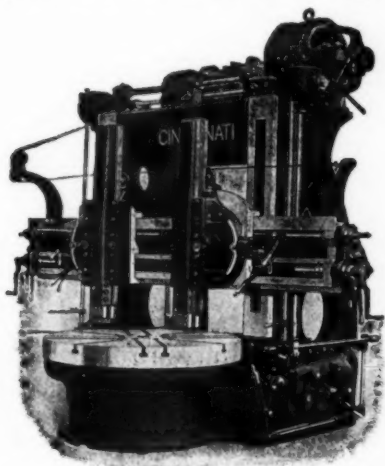
**26"
to
72"**



**The Open Side Planer with the Column
Base Cast Integral with its Closed Top Bed.**

CINCINNATI 48", 60", 72", 84"

Rapid Traverse Boring Mill



Among its salient features are—Heavily reinforced table, driven by bevel gear and pinion; rapid power traverse in all directions; centralized control, with all fine adjustments, rapid traverse, hand operating handle, feed change, feed reverse, speed change, table control and brake levers, all within immediate reach of operator; box type housing; steel gears in feed and speed boxes; tumbler type gear changes, etc., etc.

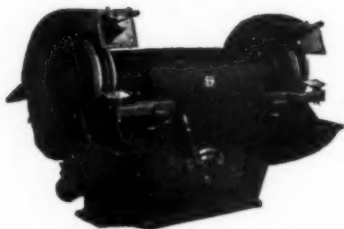
Write for Bulletin of Cincinnati Rapid Traverse Boring Mills, containing specifications and complete description, from which the practical mechanic will readily understand why the "Cincinnati" is selected for RAPID PRODUCTION.

The Cincinnati Planer Co.

Cincinnati, Ohio, U. S. A.

New Grinder!

Adjustable Speed on Alternating Current



(Pat. No. 1,477,052, other Patents Pending)

Now you can easily maintain an average wheel surface speed of approximately 9000 feet per minute regardless of wheel wear with vitrified and high speed snagging wheels. And you can use the wheels down to the flanges. Simply change the spindle speed twice during the wheel's life—and in only a few seconds with the

convenient hand lever shown above. The GRAPHITIZED MICARTA DRIVE (exclusive to U. S.) is proved to have highest efficiency in power transmission, too. It is positive in action, will not slip, and is free from back lash. It is readily accessible, durable, and low in replacement cost.



Ask Your Jobber or Write Us

THE UNITED STATES ELECTRICAL TOOL CO.

Oldest Builders of Electric Drills and Grinders in the World
2461 West Sixth St., Cincinnati, Ohio, U. S. A.

ACCOMPLISHMENT!



NAMCO OPENING DIES *with Quick Removable* **CIRCULAR CHASERS**

With *ten times* the amount of useful Chaser you will have *ten times* the Chaser Life. With NAMCO Circular Chasers, we accomplish that *and more!*

Reduced wear and tear to the vital Chaser surface, due to clearance back of the leading edge, insures permanent accuracy and thread quality, and explains the extraordinary runs between grinds.

Snap! Simplicity! Accuracy! Reliability!

Send for complete information on this revolutionary threading tool.

THE NATIONAL ACME CO.
CLEVELAND, OHIO

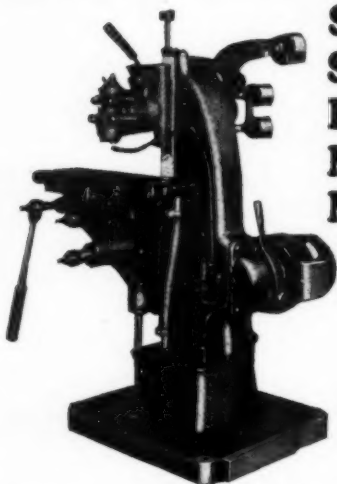
New York

Detroit

Chicago

Agencies in Principal Foreign Countries

SUPERIOR



Single Spindle Hand Milling Machine

**Can be Used
for
Vertical
or
Horizontal
Milling**

Great Range and Adaptability

This SUPERIOR Milling Machine is equipped with a vertical head which is adjustable at any angle, and is readily removable so that the machine can be used as either a vertical or horizontal mill of very great range and adaptability. Has built-in friction countershaft, and is arranged to run direct from the line shaft, or with motor drive. Pump and tank for cutting compound can be added if desired.

Write Today for Full Details of this Versatile Miller

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

1920 Ferry Park,

1-1

1-1

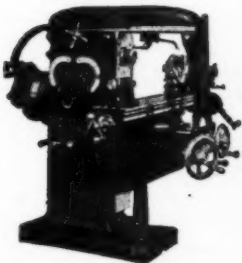
Detroit, Mich.

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.

No 2 Ohio
Universal
Constant Speed
\$ 1775

No. 3 Ohio
Plain
Constant Speed
\$ 1880



Consider

these features also:

(1) Vee-flat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

The Improved Canedy-Otto No. 29

Ready for the Job



3 Spindle Speeds
720-1430-3000 R. P. M.

Completely
Motorized—
Also Furnished
Belt Driven

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, $1\frac{1}{2}$ " endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

Production Accuracy at low operating cost



**Ready for
the Job!**

15-inch Sliding Head Sensitive Drill

**Mounted on Box Type
Column with
Oil Groove Table**

**Spindle Speeds—
400, 850, 1750 R. P. M.**

Capacity 0 to 1/2".

**This drill can be furnished
in speeds ranging from
400 to 10,000 R. P. M.**

SPECIFICATIONS—1 Spindle

Overhang.....	7 1/2"
Vertical adjustment of sliding head.....	9 1/2"
Traverse of feed rack.....	3 1/2"
Center of spindle to column at gap.....	8 1/2"
Center of spindle to planed column face.....	7 1/2"
Distance between spindle centers.....	
Size of Table.....	16" x 20"
Size of base of lower column.....	23" x 18"
Maximum Distance from spindle to table.....	33"
Width of table bearing on column.....	4"
Height to upper edge of top bearing cap.....	73"
Net wt. mounted on base & pedestal.....	505 lbs.
Crated weight.....	613 lbs.

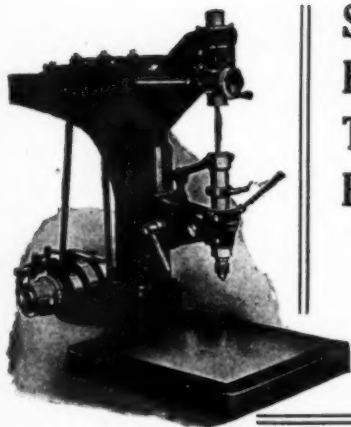
Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

**New York Branch
407 Broome St.**

**Complete stock
carried at branches**

**San Francisco Branch
955 Folsom St.**



**Speed
Eliminates
Twist Drill
Breakage.**

WHY?

**THE
SPEED KING**

Avey

**No.
 $\frac{1}{2}$**

**SPEED
12,000
R. P. M.**

*Ask for full
Information*

A fine twist drill will only stand so much pressure with resistance until it snaps.

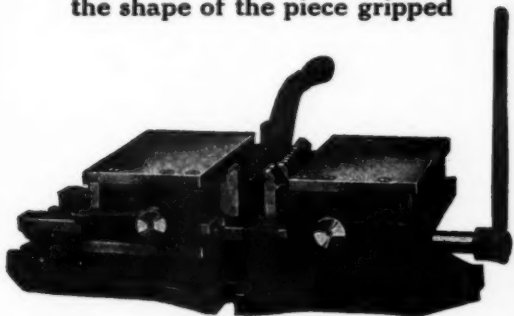
Put enough speed behind that little tool and it cuts so fast that resistance disappears and it's just like cutting butter.

It Pays to Specialize

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

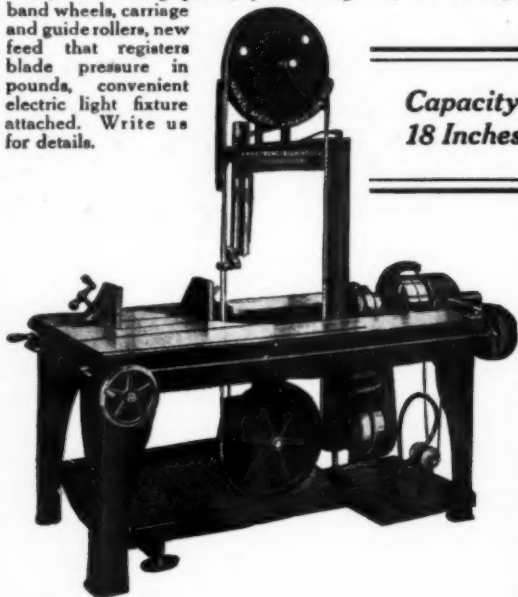
Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI

MARVEL

The Marvel No. 8 Metal Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle right or left to 45 degrees, has big roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers, new feed that registers blade pressure in pounds, convenient electric light fixture attached. Write us for details.

*Capacity
18 Inches*



ARMSTRONG - BLUM

341 N. Francisco Ave.,

MARVEL

BLADES THAT ARE DIFFERENT

High-Speed-Edge hack saw blades have a cutting edge of *Genuine High Speed Steel* welded to a back of special heat treated alloy steel. They outlast the old style common blades 6 to 10 times and are guaranteed *Not To Break* in any machine. *The Blade That Appeals To The Man In The Shop.* Get the details from us.

Swcial Alloy Heat
Treated Back—for
greater strength

Patented
Electric
Weld—
fused
integral

Genuine High Speed
Steel Cutting Edge—
for greater cutting
efficiency

MANUFACTURING CO.
CHICAGO, ILLINOIS

GRAND RAPIDS No. 1 SURFACE GRINDER



**A High Grade
Hand Feed**

**Precision
Machine**

**that will
do Your Small
Grinding Jobs**

**Quicker-Better
Cheaper**

*In many instances, a battery
of these small machines can
be used to better advantage
than a smaller battery of
larger automatics.*

THE Grand Rapids No. 1 Surface Grinder handles economically the miscellaneous run of small surface grinding jobs that are continually coming up in the ordinary tool room. On many classes of work a competent operator will be able to exceed the production possibilities of anything in the automatic surface grinder line, except the latest type of hydraulic feed machines. Strongly built of the best materials and reasonably priced. *Write for the Descriptive Bulletin.*

Grinders for Every Purpose—Send for Catalog

**GALLMEYER AND
LIVINGSTON CO.**

342 Straight Ave. S. W., Grand Rapids, Mich.

HAMMOND

Six Spindle Hydraulic Feed, Deep Hole Drilling Machine



Capacity, $\frac{3}{8}$ " Drill, 6" Deep In Steel

Write for Full Information

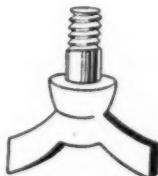
The Hammond Mfg. Co.

7808 Kinsman Road,

Cleveland, Ohio

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine



*Let us show you what can
be done on your work*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Balthoff
F. E. Satterlee Company
Smith Booth Usher Co.,
Herberts-Moore Machinery Co., San Francisco
F. F. Barber Machinery Co.
Denver
Minneapolis
Los Angeles
Toronto

LELAND-GIFFORD

ONSRUD HAND GRINDERS

14,000 R.P.M. 28,000 R.P.M.
PNEUMATIC TURBINE DRIVE

Give Small Wheels Correct SPEED and
POWER For Maximum Cutting Capacity

ONSRUD GRINDERS expedite the sinking and regrinding of dies by delivering the proper speed and power to small wheels. They are light in weight and designed to handle nicely, enabling the mechanic to execute his grinding in a minimum of time.

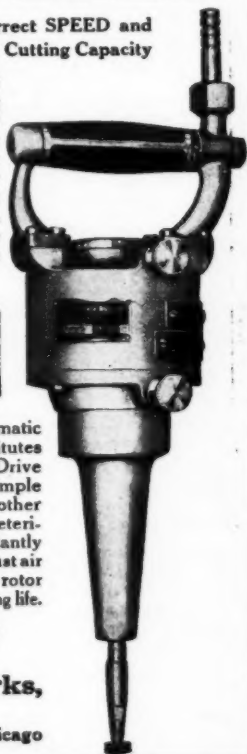


The Onsrud Pneumatic Turbine Principle constitutes the Ideal High Speed Drive for portable use. It is of simple construction with no other parts but bearings to deteriorate. These are constantly maintained cold by exhaust air and, together with light rotor weight, will give unusually long life.

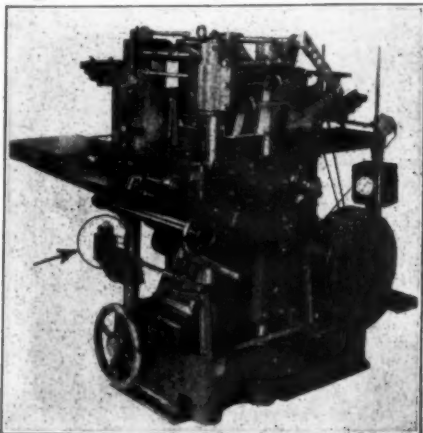
Write for Bulletin

**Onsrud
Machine Works,
Inc.**

3906-32 Palmer St., Chicago



Guard ANY NUMBER of Danger Spots at the
Cost of ONE Mechanical Stop—Use a
Simplex Safety Stop Motion



***SIMPLEX STOPS** are standard equipment on Standard Machinery Co.'s automatic feed embossing presses for book covers as shown above. The Stop protects the press from loss of production and die damage due to bad covers, jams, mis-feeds, etc.*

Protect your automatic machines and processes against Breakage, Over-runs, Jams, Mis-feeds, or any change beyond pre-determined tolerance—no matter how small, or how many. One **SIMPLEX STOP** simultaneously guards any number of places and is 100% dependable. Instantaneous in action—no machine too big or too small—no fire hazard or interference with machine's operation. Your best insurance against delays in production, and a guarantee of high quality and uniform work.

Descriptive Booklet, containing sample wiring diagrams, sent on request

THE ATLANTIC COMPANY
CHAPPAQUA, N. Y.

Illinois Plain and Surface Grinder

No.
11



Send for specifications of our No. 10 Plain and Surface Grinder—a general purpose grinder.

**With Hand
Feed Table
and
Cross Slide**

This machine has been designed to meet the demand of shops requiring an inexpensive grinder for surface grinding.

Special Features

Base: Box type construction with liberal bearing surface for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths. Long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, and runs in four Timken tapered roller bearings with adjustment collars to each

bearing. Also furnished with Bronze Bearings if desired.

Table and Cross Slide: Have dovetailed ways and tapered gibs. Table working surface 24"x6".

Countershaft: Ball bearing with tight and loose pulley and belt shifting device. Loose pulley equipped with two ball bearings.

Lubrication: Alemite system for spindle and countershaft.

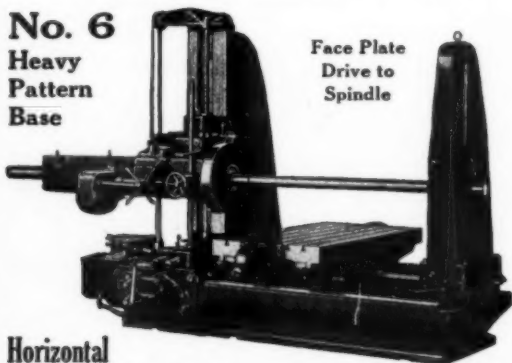
Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

The New Improved **DEFIANCE**

No. 6
Heavy
Pattern
Base

Face Plate
Drive to
Spindle



Horizontal **Boring, Milling, Drilling and Tapping Machine**

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

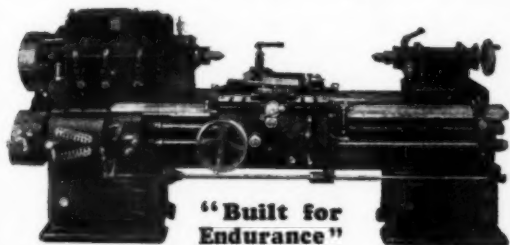
Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works **Defiance, Ohio**

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

The **LEHMANN**

An **EXCEPTIONAL** Engine Lathe



**"Built for
Endurance"**

10 Good Reasons for Leadership

16 Speed Headstock: Running in oil—simplicity of construction—only 10 gears required—all gears heat-treated or hardened—all shafts, except spindle, mounted on ball bearings.

Spindle: Alloy steel—hardened and ground—patented double spindle nose.

Carriage: Wide deep bridge—wipers and oil reservoir for ways.

Tailstock Spindle: has improved locking device.

Bed: Deep and wide—braced by large cross-ribs—chilled ways.

Apron Control of Clutch: for forward and reverse—similar handle at headstock end.

Apron: Double plate type—removable front plate—central oiling system.

Rod and Screw Shift: Positive and safe.

Patented and Quick Change: Wide range—central oiling system.

Improved Friction Clutch: Forward and reverse—running in oil—self adjusting.

Geared Head and Cone Head—Double Back Geared

Made in Sizes from 16' to 24'

*Write for Catalog giving complete details of
these 10 Features—and many others*

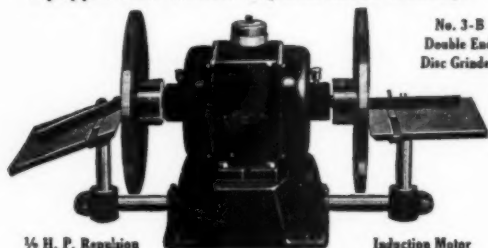
Lehmann Machine Co.

3571 Chouteau Ave.,

St. Louis, Mo.

Winterhoff MOTOR DRIVEN Portable Tools

Equipped with Timken Tapered Roller Bearings



This grinder is a sturdy, accurate moderate-priced machine that will stand up under any usage and deliver a true flat grinding surface—a better grinder cannot be bought at any price. Complete as shown with two 12-in. steel discs, two tilting tables, two protractor guides, toggle switch with cord and attachment plug. We now also make a 14-in. disc grinder, with $\frac{3}{4}$ h. p. motor. Both grinders guaranteed to be first class in every respect.

Portable Electric High Speed Sensitive Bench Drill



This sturdy moderate-priced drill with its speed and accuracy will cut your drilling costs to a minimum. *It is positively the greatest value ever offered in a machine of this kind.* It is equipped with standard chuck, $\frac{1}{4}$ H. P. motor, 2-step cone pulley, giving speeds in combinations of 600 to 3000 R. P. M. Table moves all the way down and may be swung to one side for large work.

We also make a line of portable, electric Saws and Sanders.

Full Details on Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All - Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

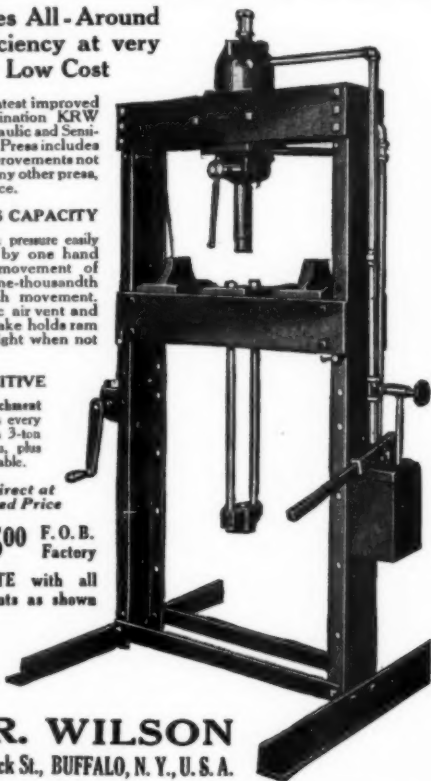
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

\$115⁰⁰ F. O. B.
Factory

COMPLETE with all
Attachments as shown



K. R. WILSON

10-14 Lock St., BUFFALO, N. Y., U. S. A.

**K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City**

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

**Are made in
three sizes,
with either
single or
double action**

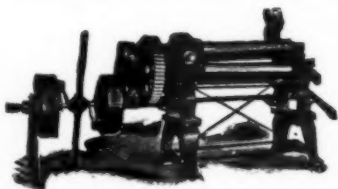
Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

**The Taylor & Fenn Co.
Hartford, Conn., U. S. A.**

BELOIT

Punches—Shears—Bending Rolls



Initial Type

Sheet and Plate Bending Rolls

These Bending Rolls are built to fill the demand for strong, efficient and quick acting rolls for forming sheets and plates into cylindrical shapes. Adapted to the requirements of sheet metal and light plate working parts, and indispensable in any plant having a metal working department.

The modern design of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

Strong, compact, easy to operate, conservatively rated and amply back geared to require the minimum of power.

Made in Initial Type, as shown above, or in Pyramid Type. We also make various types and styles of Punches and Shears. Write for complete descriptions.

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

MORE THREADS PER TAP IF YOU USE THE FREW TAPPER



No. 1
Capacity
to $\frac{1}{2}$ "

Direction of Rotation Mechanically Controlled.

The Operator Pulls The Hand Lever—

The Machine Does The Rest.

*Timken Roller Bearing
Equipped*

Long bronze bearings, carried in Timken Roller Bearings, eliminate crooked tapping and tap breakage. The alignment is so perfect that tap withdraws from hole without the slightest chance of stripping the last thread. The FREW will meet your most rigid requirements on standard long run jobs—and on short runs too. Multiple heads and foot lever attachment may be secured.

BELT OR V BELT MOTOR DRIVE

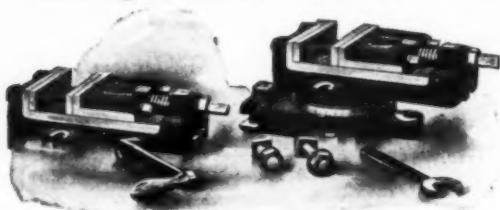
Write for complete information—and if you have any production tapping problems, we'll be glad to help you

THE FREW MACHINE CO.

136 West Venango St.,

PHILADELPHIA, PA.

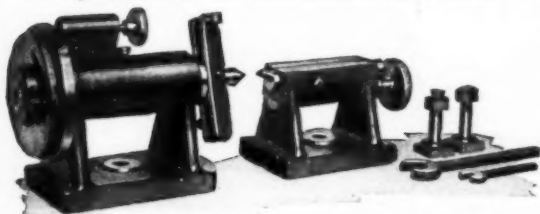
"Straight Line" Milling Vises



Swivels 180° Either in a Horizontal or Vertical Plane.
STRONG — DURABLE — ACCURATE
Made in Four Sizes

Ordered repeatedly by leading machine tool users for accurate heavy duty milling. Interchangeable parts.

Adjustable Dial Index Center



With work dogged between centers, and latch pin in, the dial can be turned to bring work in position where wanted as to relation with machine cutter or emery wheel, then bound to start indexing from such setting. Regular dial is drilled for three and four stations. Can be used for re-cutting or grinding flutes in taps and reamers or teeth in cutters.

Also Manufacturers Of

Double end horizontal drills, milling machines and attachments, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw sloters, hand lathes, collet chucks, oval chucks, rotary tables, hex-square milling fixtures.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

25 Cleveland Place,

NEW YORK CITY

STANDARD

**PROPER
SPEED**

**TWO MOTOR
BALL BEARING**

BUFEER AND POLISHER



Embraces features like

2 40° G. E. motors with independent Push Button Controls.
4 SKF ball bearings. Dayton cog belt drive.
Spindles with hand brake and locking device for changing wheels.

Made in 3, 5 & 7½ H. P. Sizes

Bulletin describing mechanical features and specifications on request.

The Standard Electrical Tool Co.

Established 1912

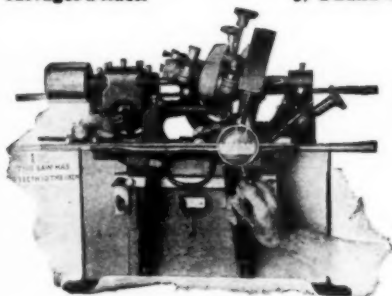
1938 W. 8th St.,

Cincinnati, Ohio

WARDWELL Hack and METAL CUTTING Band Saw SHARPENERS

2¢ Salvages a Hack

5¢ a Band Saw



**FOR DEMONSTRATION
MAIL 2 SAWS
TO BE RESHARPENED FREE**

Write for Catalog

Representatives in all Principal Cities

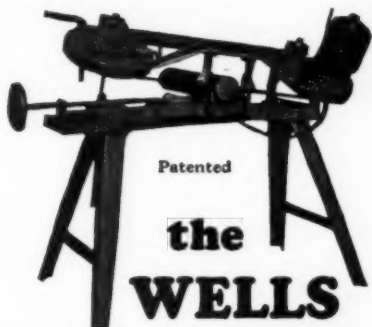
THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard
Tempered Band Saws, Milling, Slitting and Screw
Slotting Saws and all Woodworking Saws

Manufacturers of the largest line of Saw Filers made in U. S. A.

108 Hamilton Ave.,

Cleveland, Ohio



Patented

the **WELLS** metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing**, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{64}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

The J. & B. Filing and Sawing Machine

Production
demands efficient
machine tools



Type
1-AP

Any common
ordinary file
can be used by
the J. & B.
up to a 12"
flat mill or
bastard — any
shape.

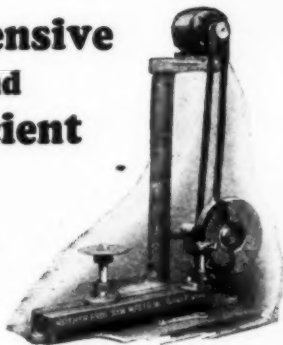
Our patented
file holders take
care of the taper
and ones that
are crooked,
bringing the
working side of
the file to an
absolute vertical
position. Thus
doing away with
the necessity of
keeping a stock
of special or
parallel files on
hand.

Write for complete details NOW!

LaPorte Machine & Tool Co., Inc.
LaPorte, Indiana

Inexpensive and Efficient

**Huthier Bros.
Metal Cutting
Saw
Sharpener**



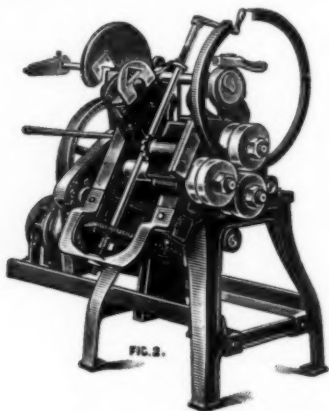
The saw grinding requirements of many plants do not warrant the expense of installing an automatic saw sharpener. These plants will find their sharpening requirements met by the Huthier No. 2 Metal Cutting Saw Sharpener.

An average operator can handle it as fast as an automatic machine. Designed for handling coarse and fine pitch metal cutting saws, inserted tooth and solid milling saws, automatic bevel and straight teeth. Its range, with or without index, is from 6" to 40" diameter. Furnished with or without motor drive.

Huthier Bros. Saw Mfg. Co., Inc.
ROCHESTER, N. Y.

EXCELSIOR

Circular Angle Bending Machine No. 14



Band and Angle Iron
Forming Machine No. 13



Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.

East St. Louis, Illinois

—ABBOTT—



Ball Burnishing

is the *best* method of finishing your small metal pieces quickly and economically.

Best because it gives a high lustrous color to stampings, castings and forgings, and because the concentrated action of thousands of small steel balls, rolls down the minute irregularities and forms an excellent surface for subsequent plating operations.

Many manufacturers are finding that the flexible production and large economies which the **Abbott Ball Burnishing Process** gives, are largely responsible for their ability to meet competition on certain types of work.

Why not investigate the possibilities of ball burnishing by sending in a few samples of your work for an experimental treatment. There is no obligation.

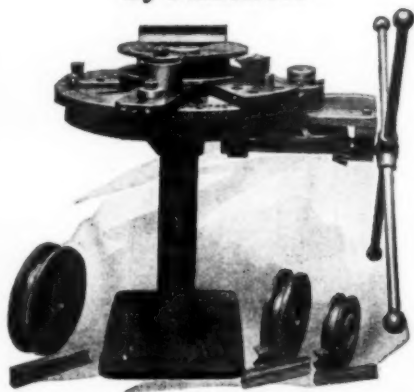
The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn.

A New Horizontal Pipe Bender

By *PEDRICK*



Universal satisfaction for the past 20 years has been the keynote of our success with bending pipe.

Recently we have made **two** radical departures, viz., the horizontal table and the improved bending principle, which offers decided advantages in **Time-saving, Convenience** and **Superior Work**.

Iron, steel, galvanized and copper pipe are bent cold and unloaded on the radii of the rolls. For 2" and under.

We have a Bulletin awaiting for you.

SEND FOR IT NOW.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

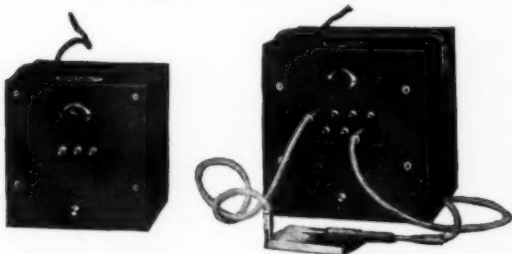
Manufacturers of Cylinder Boring Bars, Portable Millers,
Crank Pin Turning Machines, etc.

The Etchograph

Trade Mark

Electric Marking Machine

Introducing the JUNIOR ETCHOGRAPH



Junior has all of the features of the ETCHOGRAPH, with only two marking heats where the Etchograph has six. Built to mark Tools, Gauges, Test Pieces. Not for heavy work.

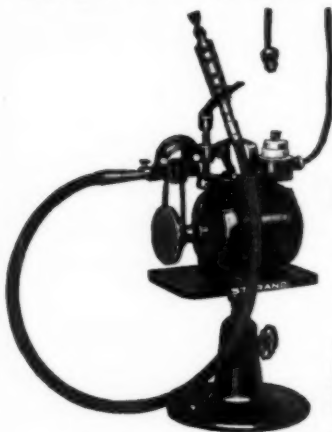
Both machines equipped with pencils having the wonderful "Elkonite" Marking Points, making deeper and clearer lines and outwearing the copper points ten to one.

The first ETCHOGRAPHS, after twelve years service, are still doing their bit without maintenance cost.

Write for prices. giving your current and frequency

William Brewster Company
50 Church Street, New York, N. Y.

Type RF-M4 Machine



Strand

Capacity— $\frac{1}{4}$ H.P.

For
**Rotary Filing
Grinding
And
Polishing**

10,000 R. P. M. Attachment
Furnished Extra
when Required. See
Illustration.

Attachments



N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street

CHICAGO

PATENT APPLIED FOR



**Portable
Foolproof
Durable**

**Used on
A. C. Light
Current**



Marks hardened steel tools, samples of steel metallurgical specimens, special fixtures, etc. permanently and quickly with department and operation identification.

No Fuss or Muss

Demagnetizes large steel blocks, or small steel tools instantly and thoroughly.

*A Time and Labor Saving Combination well
Worth investigating by any Plant Manager.*

Luma Electric Equipment Co.

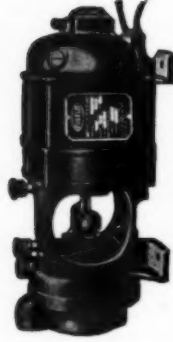
Main P. O. Box No. 132

Dept. H.

TOLEDO, OHIO



GRINDER PUMP



MOTOR DRIVEN UNITS
1/2 to 5 H. P. 5 to 75 G. P. M.

VOLUME PUMPS

FULFLO delivers coolant in volumes which promotes efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective.

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

"GUSHER" COOLANT PUMPS



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{4}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

ARE
Centrifugal
Vertical
Ball Bearing
Perfectly Balanced
Reliable
Easily Installed
Long Lived

"GUSHER" Coolant Pumps are the simplest and most efficient pumps made. They give an instant and easy flow without air bubbles or pulsations. Deep grooved ball bearings, automatic oiling and sufficient clearance for passing chips, grit and abrasive matter through without injury to the mechanism—all these aid in efficient, effortless performance.

Complications Are Avoided

by the elimination in "GUSHER" Pumps of troublesome packing nuts, foot and relief valves, and priming. The deteriorating effects of friction are done away with through the use of ball bearings, and these ball bearings are themselves protected against the lubricant by obtaining perfect hydrostatic balance.

Made in Several Styles

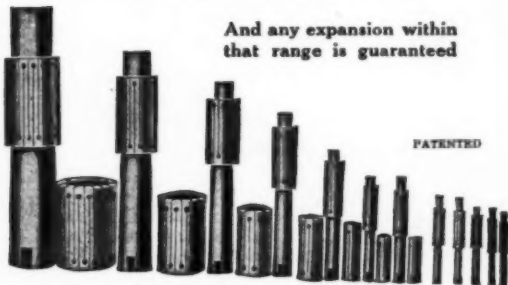
and many sizes, of all desirable capacities, with individual motor or belt drive. "GUSHER" Coolant Pumps are ready to serve you.

*Send for the Complete "GUSHER" Catalog listing
the various models with capacities of
from 12 to 75 gallons per minute*

The Ruthman Machinery Co.
528-534 E. Front St., Cincinnati, Ohio

JUST 1 SET OF 12 Champion Expanding Mandrels

Will fill by thousandths any inside
diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



And any expansion within
that range is guaranteed

So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

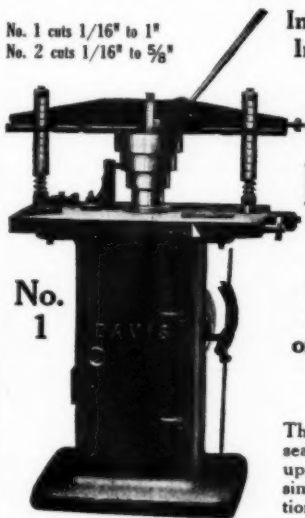
Our Catalog also describes

Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

Faster Keyseating

No. 1 cuts $1/16''$ to $1''$
No. 2 cuts $1/16''$ to $5/8''$



No.
1

Cutting Keyway in Cone Pulley

In Quantity or
In Small Lots
with a

**DAVIS
Keyseater**

Increase
your
Production
on straight
or mixed runs
and Save
Money

The DAVIS Key-
seater is quickly set
up, easy to operate,
simple in construc-
tion, accurate and
very fast.

A Davis Keyseater will solve your keyseating problems on work from $1/16''$ to $1''$ in hubs to $12''$, in a very efficient manner.

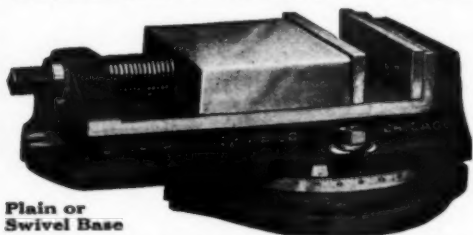
Made in two Sizes

Write for folder, which describes it fully, with a table of cutting time that tells its own story.

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

SHELDON MILLING MACHINE VISES



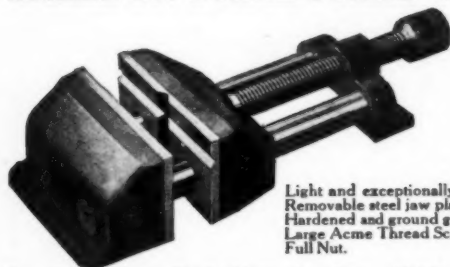
**Plain or
Swivel Base**

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/2"	1 3/8"	2 1/4"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 5/8"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/2"	1 1/2"	4"	15 lbs.	\$12.00
D-6	6 1/2"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 1/4"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement.

Speeds from 875 to 10,500 R. P. M.

For Snagging, Burring, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball Bearing Hand-piece, Ball Bearing Motor, Universal Swivel.

Complete Line of Accessories

Rotary Files, Sanding
Drums, Emery Wheels,
Wire Brushes, Polishers, Etc.

STOCKS AT

Brooklyn
Cleveland
Detroit
Chicago
St. Louis
San Francisco

*Write us today for list of users
in your line of manufacture*

**Keller Mechanical
Engineering Corp.**

KME

58A Washington St.,
BROOKLYN, N. Y.

Builders of the Keller Automatic Die Cutting Machines



Be sure the letter



is on all your
Punches and Dies

They are made in our own factory and are genuine.

No. 7 ROLLER BEAR'G PUNCH



Capacity $\frac{1}{4}$ " thru $\frac{1}{2}$ " iron
Weight.....6 $\frac{1}{2}$ lbs.

MADE IN 3 SIZES

Nos. 7-7 $\frac{1}{2}$ -8

No. 11 BALL BEARING PUNCH



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ " iron
Weight8 lbs.

No. 24 BALL BEARING PUNCH



Capacity $\frac{1}{2}$ " hole in $\frac{3}{8}$ " iron
Weight.....45 lbs.
Punch in center of 7"

ANGLE IRON SHEAR No. 4

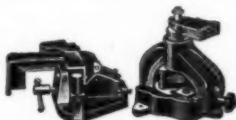


Capacity 2"x2"x $\frac{1}{4}$ " Angle Iron
Weight.....44 lbs.
Inserted Tool Steel Blades

No. 50 Angle Iron Mitre Notcher and No. 51 Angle Iron Bender

Weight of Mitre Notcher.....55 lbs.
Weight of Mitre Notcher Bender 43 lbs.

Capacity—Will Shear Mitre in
2"x2"x $\frac{1}{4}$ " Angle Iron
or Smaller.



Whitney Metal Tool Co.

95 Forbes Street,

Rockford, Illinois

THE BULL DOG

$\frac{1}{2}$ "
Heavy
Duty

\$48



Universal
Current

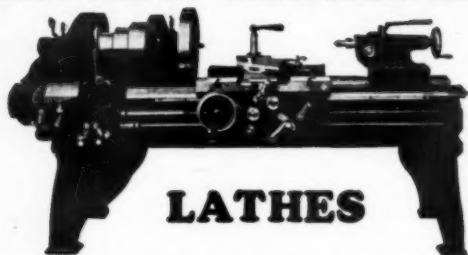
Let's Send You 16 Reasons
why BULL DOG DRILLS
Are the BEST

Week's
FREE Trial

*If your dealer can't supply you, we'll
gladly send you a biting BULL DOG
Drill for a week's rough-house test.*

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use. Single and double back gear with cone drive. Geared head with belt and motor drive.

Sizes 16'-18'-20'-22' and 24'

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12 SPINDLE SPEEDS

Chrome Nickel Steel Gears

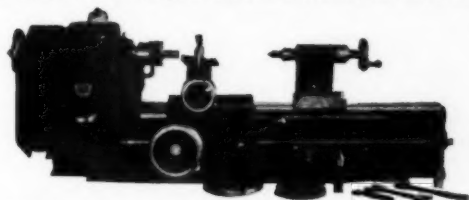


**C. & J. 15/16-inch
Geared Head
Motor Drive Lathe**

ASK FOR FURTHER DETAILS

**Carroll & Jamieson Machine Tool Co.
Batavia, Ohio**

9" A.V. Carroll Geared Head Lathe



A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor direct connected. Cuts right or left hand threads. Furnished also with three step cone belt drive.

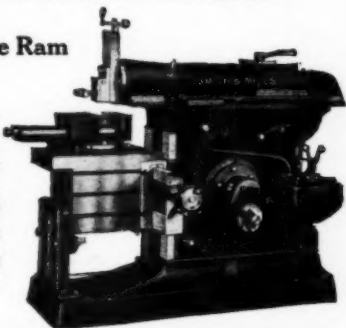
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A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

SHAPERS

"V" Type Ram

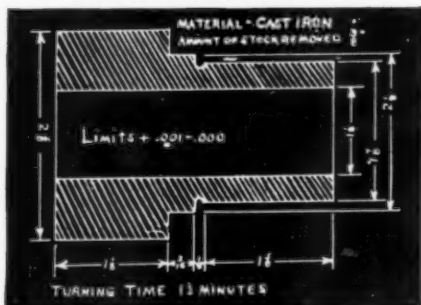
12", 14", 16",
20", 25" Gear
Box single pulley or motor drive, also 16", 20", 25" B. G. cone drive with belt shifter. 32" B. G. all geared single pulley or motor drive, all sizes crank type.



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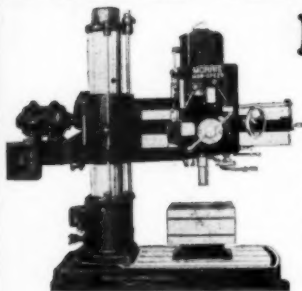
Chard Lathe Company

Newcastle, Indiana



**Above Operation Was Turned On A Chard Manufacturing Lathe.
Compare This With Similar Jobs.
Let Us Tell You More About It.**

Morris Mor-Speed Radials



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Column Diameters

This is the last word in Radial Drill Design. Timken Bearing equipped. All speed and feed changes located in the head. Many other features.

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**Gear Hobbers
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Our many years of experience in specialized machinery building has placed us in a recognized class.

Your special machinery requirements should be analyzed by expert engineers.

We can design your machines or work according to your specifications.

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Reductions from 2 to 1 up to 50,000 to 1.

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"Gear Problems"



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IXL GEAR & MACHINE CO. IXL

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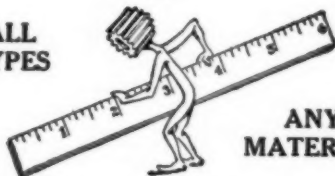
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Mass.



Gears

**ALL
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**ANY
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Medium and Small Size Gears

MASSACHUSETTS GEAR & TOOL CO.

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Universal Joints

Steel and Bronze



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Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

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E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost. Made in four sizes. Can be easily attached to all size lathes. A reliable device that will aid the operator in the work of cutting threads. With it threads can be cut close up to shoulders as easily as the ordinary thread.



Eliminates stopping or reversing the lathe.

The many repeat orders received prove it is satisfactory after trial.

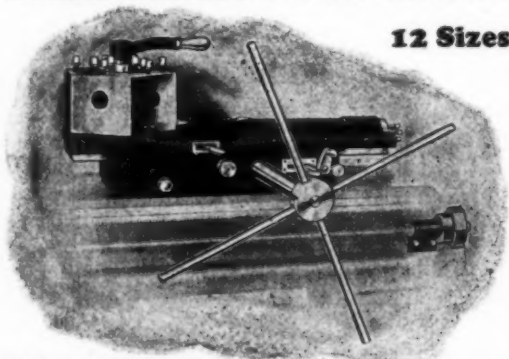
Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

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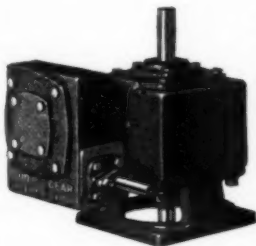
Standardized Lathe Turrets

12 Sizes



FAY & SCOTT
Dexter, Maine

For any make of Lathe
old or new



DOUBLE SPEED REDUCERS

Reductions
up to 24,000 to 1

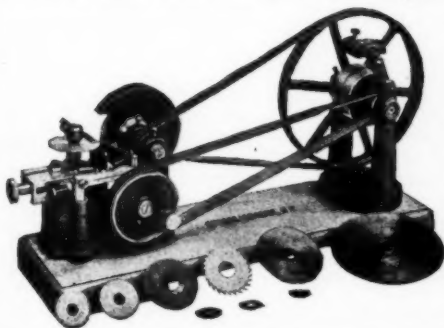
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THE OHIO GEAR COMPANY

1331 East 179th Street

Cleveland, Ohio

Automatic Saw Sharpener



for
saws
and
slotting
cutters
1¼" to
5½"

Price
\$95

GEORGE SCHERR CO., 142 W. Liberty St., NEW YORK



Townsend Centrifugal Multi-Blow Riveters

You have heard of them.

Used in all countries.

The one riveter that imitates
riveting with hand hammer
and set.

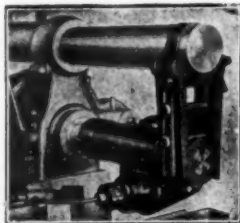
17 STYLES

Rivets from from .008" to 5/16" without
distortion, or breaking fragile materials—
porcelain, glass, hard rubber, bakelite,
carbon, etc.

Especially for fine, high grade work.

H. P. Townsend Mfg. Co.
Hartford, Conn.

Have you fussy milling jobs with many set-ups?



For delicate boring, recessing, mill-
ing and similar operations with many
set-ups, you should investigate
Porter-Cable Milling Attachments.

Reduce the set-ups. It costs less
to move the cutter than the work.
Besides increasing miller capacity,
these attachments operate at any
angle in any plane—can be put on
or off in 3 minutes.

Made for hand and power feeds
—5 sizes for
EVERY need.

*A 10 day free examination of whatever attachment
your milling conditions demand. Meanwhile,
send for illustrated booklet showing the
many savings Porter-Cable Milling
Attachments offer you . . .*

The Porter-Cable Machine Co.

Machine Tool Builders for 23 years

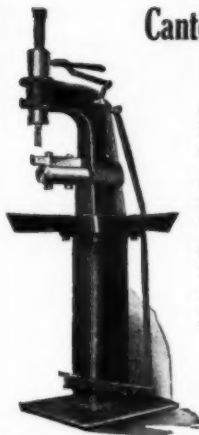
Salina St.,

Syracuse, N. Y.

68



3946



Canton Pedestal and Bench Pneumatic Riveters

Give more blows with more power in every blow, hence greater production and lower costs.

No rubber, leather or wood in the construction, therefore longer life with less expense.

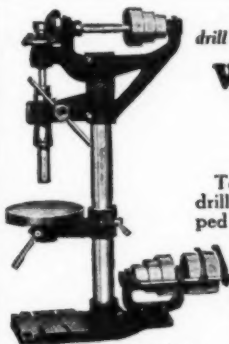
Nothing equals compressed air for speed and simplicity.

You get the best when you buy a Canton Pneumatic.

*We also build a complete line of
Chipping and Calking Hammers*

Canton Pneumatic Co.

1720-9th St., S. W., Canton, Ohio



10" SUPERIOR Type: "M"

*"If it's to be drilled:
drill it the "SUPERIOR" way"*

What Does It Mean To You?

To know that your small drilling equipment is equipped thruout with hi-grade Bronze bushed bearings; thus assuring you of *un-interrupted* PRODUCTION which means greater profit.

May we send our catalog?

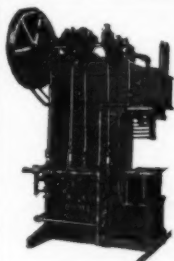
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Kokomo, Indiana

SINCE
1902

Hydraulic Pressure To Meet Your Specific Need

No matter what your need—whether for straightening, drifting, forming, broaching, etc., Lourie Presses can serve you in any capacity.

Perhaps you are encountering difficulty in forcing that can be accomplished more soundly and economically by hydraulic pressure. New uses for the Lourie Press are being found daily!

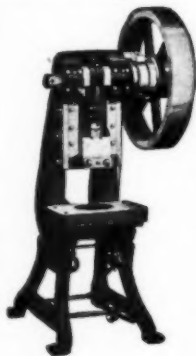


Steel Plate Construction

Our Engineering Dep't. welcomes the opportunity to suggest methods of applying hydraulic pressure. Ask for Bulletins 1301-2.

LOURIE MFG. CO., 565 W. Washington
Blvd., CHICAGO

The Spirit Of the Times



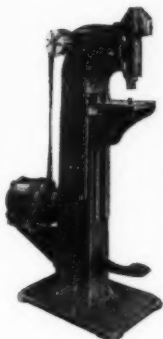
is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain Hi-Production—and they do it.

Wide range of sizes and types.

Write today for new catalog

Rockford Iron Works
Rockford, Ill.



For Your **RIVETING** Linley Rotary **RIVET SPINNERS**

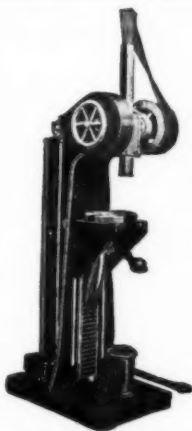
**Cover a wide field of riveting.
Simple in design but—
Rigid and powerful.
Made in 15 Models.**

**Get the full details before buying
a riveter**

**WE ALSO MANUFACTURE
EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES**

SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave.,
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Atlas Arbor Presses

For All Forcing Operations

Illustration shows our
No. 55 Power Drive
Press, which is adapta-
ble for fast production
work and capable of
supplying ten tons pres-
sure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.
Hartford, Conn., U. S. A.



Grant Rotary Riveter



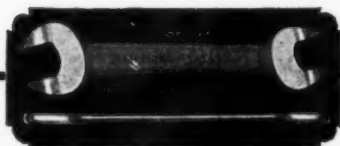
**Makes Every Riveting Job
Both Easy and Satisfactory**

Its speed of one perfectly formed rivet every operating second—the convenience with which it places rivets in previously hard-to-get-at places, and its fool-proof construction that admits rapid operation by unskilled labor, all combine to make it a tool that you cannot overlook in figuring economical shop processes.

However, Actual Results are the most Convincing: Send us a sample for riveting. We will return it with full production data.

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Seven
Types



Singly or
in Sets

ARMSTRONG — VANADIUM WRENCHES

Drop forged from Chrome-Vanadium Steel. Longer, lighter, thinner, **stronger**. Guaranteed not to break or spread. Take a firm grip where other wrenches will not reach. Finished in nickel over copper.

Write for
Catalog A-V-27
Today.

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



The HANDNIB for Tool and Die Work

Inside Nibbling, Outside Nibbling, Drill rod cutting without distortion, and accurate Shearing, are the features of our model A-5 Handnib tool.

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a folder ?*



National Machine Tool Co.
1536B Clark St.,
Racine, Wis.

**Drill From 900 to 1200 Holes
per Hour**

with the

DETROIT

Semi-Automatic

Five Spindle

DRILLING MACHINE



This efficient production machine will turn out the work as fast as the operator can feed it stock. A pull of the lever locks or unlocks the fixtures instantly. Capacity No. 60 to $\frac{3}{8}$ " drills. If you are looking for speed, accuracy, simplicity and low cost operation—try the DETROIT!

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Detroit Machine Tool Co.
5061 Woodward Ave., **Detroit, Mich.**



Die Making Machines

save an average of 50%

Dies, templates, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders



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for

Bulletins

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.

SIGOURNEY Sensitive Drills

All Parts Interchangeable!

Made with 1 to 4 spindles.
Self-aligning ball bearings.

Extremely sensitive, accurate
and durable, they are *quality*
drills for those who buy tools
for what they do.

The picture shows
our No. 0 2-spindle
ball bearing Bench
Drill--a splendid tool.

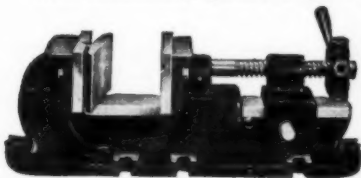


Booklets on both Plain and Ball Bearing Drills

THE SIGOURNEY TOOL CO., HARTFORD, CONN.

Gem Drill Press Vise

With Automatic, Quick-Acting, Powerful Grip



***Holds
Irregular
Pieces
Firmly***

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

J. E. Martin Tool & Die Works, 528 W. State St.
Springfield, O.



"SCULLY-JONES"

Self-Aligning Reamer Holders

For Screw Machines—Turret Lathes—Drill Presses

COMPENSATES for all irregularities in machine alignment. Reamer can float to one side, at the same time swing on an angle in any direction to align itself with the work.

THESE HOLDERS are made in five standard sizes for reamers up to 3" diameter. Adaptable to any style machine drive or reamer shank.

ORDER ONE ON APPROVAL

Write for copy of our Small Tool Catalog No. 36 which completely lists and describes these Holders as well as all other "Wear Ever" Production Tools.

SCULLY-JONES & CO., TOOL DIVISION
1901 S. Rockwell St., CHICAGO, ILL.



IF YOU TAP HOLES—

Why not have the feel of the tap right at your finger tips? A tap is a delicate tool. The Ettco Tapping Attachment taps delicately—with increased speed—That's the answer.

THE ETTCO High Speed Tapping Attachment

is simple—nothing to adjust—if the tap sticks or hits bottom the Ettco slips—the same action coming out. No clash of a positive clutch—just the smooth action of the patented leather lined cone clutch.

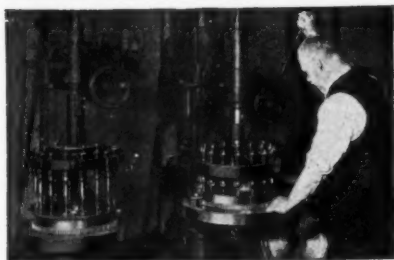
SENSITIVE—SPEEDY—SATISFACTORY.

No. 1—Tapping Attachment	$\frac{3}{16}$ " in steel, $\frac{1}{4}$ " in C. I.	\$35.00
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ETTCO TOOL CO., Inc., 400 Johnson Ave.,
BROOKLYN, N.Y.

Formerly Tool Division of Eastern Tube & Tool Co., Inc.

DORMAN 16-Spindle Drill Head



and
Tapper
14-31-32¹
Centers

Drill Head has No. 1 Morse taper in spindles and ball thrust; Tapper has automatic reverse, 5/16-24 taps tapping $\frac{7}{8}$ " deep in tough cast iron. 500 pieces can be drilled and tapped and head changed in a few minutes without lost time for adjusting, and accuracy is always maintained. Housings of tough aluminum.

Send Blue Prints or Layout for Quotation

**JOHN H. DORMAN, 5148-52 Hudson Blvd. W.,
WEST NEW YORK, N. J.**

TAPPING?

Try a "PROCUNIER". Blind holes can be tapped just as easily as through holes, and without danger of breakage.

Balanced Reverse— All Hardened Gears

Specially Treated Clutches

Fool-proof Safety Friction Device

Reliable Tap Holder



No. 1 Style A, $\frac{7}{32}$ in steel	\$28.00
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No. 3 Style A, $\frac{1}{2}$ in steel	40.00
No. 4 Style A, $\frac{5}{8}$ in steel	52.00

Don't hesitate to ask for a free trial.

*Catalogue 102-B gives complete details of "PROCUNIER"
Safety Tapping and Quick Change Chucks, Stud
Setters and Bench Tapping Machines.*

Procunier Safety Chuck Co.

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Racine Shear Cut Production Saw—Positive screw feed, cutting time never varies. Blade life is trebled.

Insuring Precision Work

In the Racine Shear Cut Production Saw a new feed principle eliminates all blade distortion, with the resulting inaccuracies. The blade is drawn into and through the stock in steady, even cutting strokes.

Many prominent manufacturers and metal working shops use the Shear Cut in preference to all others, in some instances replacing two to four other saws. Write for complete information and a FREE cutting chart.

Racine Tool & Machine Co.

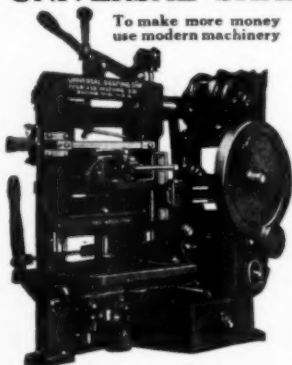
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RACINE

HIGH-SPEED

METAL CUTTING MACHINES

—PEERLESS— UNIVERSAL SHAPING SAW



To make more money
use modern machinery

Different Principles
Greater Efficiency

Give The Most Of—

Speed

Accuracy

Blade Economy

SIZES:

6"x6" -- 9"x9" -- 13"x13"

PEERLESS

HIGH SPEED HACK-SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

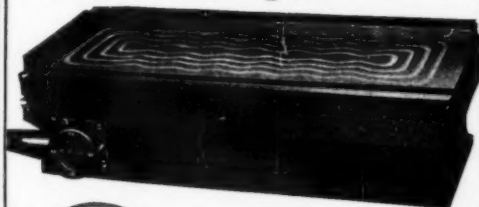
Peerless Machine Co.

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"D & W" Flat & Rotary Magnetic Chucks



Our Extensive Line covers a wide range. They save time and cut costs of holding iron and steel pieces. Glad to investigate and report on any problem you may have in connection with the use of Flat and Rotary Magnetic Chucks. Address

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Victor A NEW DEGREE IN EFFICIENCY!



**Hack
Saws**

For years VICTOR HACK SAW BLADES have been tried and tested with other blades through the metal industry they have consistently proven their superior qualities.

Today they reach a new degree in efficiency and cutting consistency, which can result only from the finest production equipment, manufactured under time proven and superior methods.

A trial will convince you

VICTOR SAW WORKS, Inc., Middletown, N. Y.

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

These machines are now equipped with the new auxiliary coarse cross feed for surface grinding.

Capacity 12"x36"

**The Thompson
Grinder Co.**

1534 West Main St.,
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Hartford Taper Gage

Locates Inaccuracies Instantly

When turning tapers on end mills, profile cutters, twist drills, reamers, lathes, etc., accuracy is all important. The Hartford Taper Gage enables the workman to tell instantly whether a taper is right.

Simple—Inexpensive—Reliable

Any inaccuracy down to .001" can be instantly detected. Adjustable over a wide range—from No. 0 to No. 14 taper.

Write for Complete Details and Price

**We Also Build Machinery on a Contract Basis
And Design and Develop Special
Automatic Machinery**

Gears Cut To Order

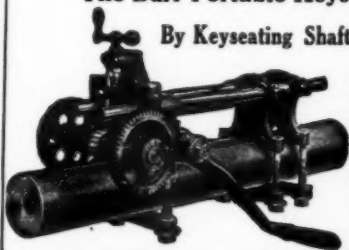
Hartford Special Machinery Co.

285 Homestead Ave., Hartford, Conn.



"Burr" Simplifies Keyseating

The Burr Portable Keyseater



By Keyseating Shafting in Place

Does away with the expense of dismantling, shafting and tearing down equipment for keyseating. Working from any position, it cuts perfect keyways up to 12" long in shafts up to 5" in diameter.

Figure the Saving!

Better have one on hand for your next shafting job. 10,000 users have saved dismantling expenses by using a "Burr". *Will you be next?*

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

Good News

Comes from

Headquarters

"We now have the Keyseater" to do the job. We were stuck until this tool was discovered. It is only necessary to look into Hitchcock's Machine Tool Blue Book.

Send for Catalog O

National Machine Tool Co.

2268 Spring Grove Ave.,

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"Use the MALL Method"



for
**Cleaning
Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing**

**Mall Tools are
powerful tools**

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Mall Tool Company, 7730 So. Chicago Ave.,
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THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.



Built in sizes to meet all requirements.

Speeds up to 10,500.

**For snagging, burring, lapping, buffing,
polishing, sanding, drilling,
wire-brushing, etc.**

COMPLETE LINE OF ACCESSORIES

**Rotary files, emery wheels, sanding
drums, wire brushes, etc.**

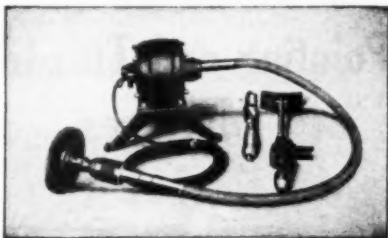
Tell us your problem.

*Builders of the
Keller Automatic Die Cutting Machine.*

Keller Mech. Engineering Corp., **KME** 58A Washington St.
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The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co.

3623-25 Brandywine St.,

Philadelphia, Pa.

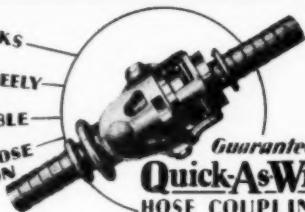
The Best Since 1876

NEVER LEAKS

SWIVELS FREELY

UNBREAKABLE

FOR ANY HOSE
CONNECTION



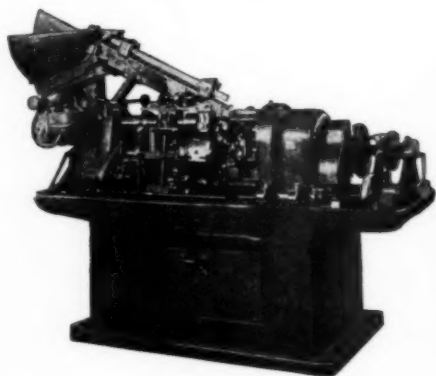
Guaranteed
Quick-As-Wink
HOSE COUPLINGS

Send for Free Sample

Made of famous Tobin Bronze, Quick-As-Wink Hose Couplings resist the most severe usage—are not affected by mud, snow or ice—connect and disconnect by workman in 30 seconds but never accidentally. Guaranteed one year. Sizes $\frac{1}{8}$ " to 4". Get descriptive literature and prices.

C. B. HUNT & SON, Salem, Ohio
643 McKinley Avenue

Combined Automatic Pointing and Threading Machines

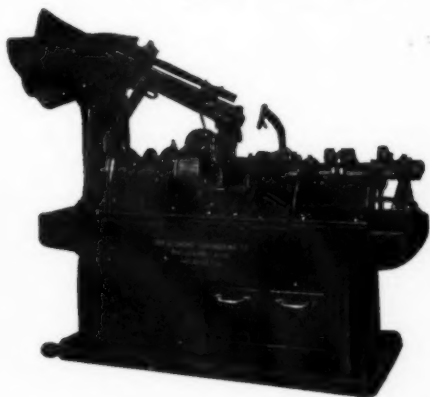


For Bolts and Cap Screws
Capacity— $\frac{3}{16}$ " x 1" Diameter
1" to 6" Long

Write for Full

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws

Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

COMPANY, - Willoughby, Ohio



**Bench
Type "C"**

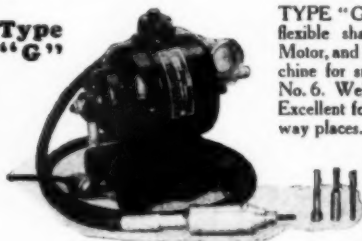
VIM TOOLS

**Portable
Electric
Versatile**

**for
Screw Driving
Nut Setting**

The VIM Bench Machine Type "C" for screw driving and nut setting is operated by a foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired.

**Type
"G"**




TYPE "G" VIM Tool has flexible shaft with Universal Motor, and is a very handy machine for small screws up to No. 6. Weighs only 12 ounces. Excellent for use in out-of-the-way places.

NOTE: In all types, the bit does not operate until applied to work

*We have other types to suit your conditions.
Send for Bulletins and Prices.*

Vim Electric Tool Company
149 Broadway, New York City



**Increased Production
from 850 to 2600 pieces
per day — And saved
\$1,167.50 per year!**

A prominent Eastern manufacturer of locks demanded greater economy in a certain drilling operation. The job consisted of gang drilling of 6 close-spaced holes through a brass pin tumbler lock cylinder.

Carbon drills, No. 31 wire gauge, were producing about 400 holes per drill, at a total drill and press cost of \$12.54 per 1,000 cylinders.

CLEW FORGE

TRADE MARK REG. U.S. PAT. OFF.

High Speed DRILLS

were introduced, produced 11,000 absolutely uniform and accurate holes per drill, at a total drill and press cost of \$3.56 per 1,000 cylinders!

Not only was production jumped from 850 to 2600 cylinders per day—

But, the net annual saving was \$1,167.50.

This complete performance report is contained in Digest No. 56. You will find it absolutely interesting. Shall we send you a copy?

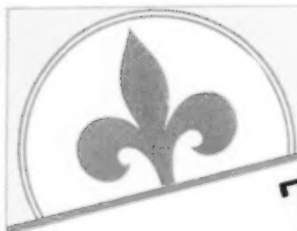
C

The

CLEW FORGE

**TWIST DRILL
COMPANY
CLEVELAND**

NEW YORK CLEVELAND LONDON
LAWYERS 1920



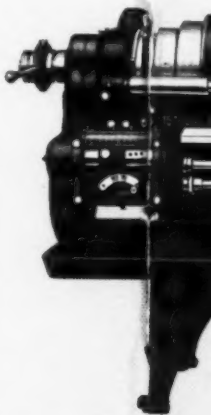
The LE BLOND Tool Room

Convenience, rigidity and ease of control are all inherent characteristics of this lathe which possesses in full the accuracy and precision demanded of a tool room lathe.

LE BLOND
MACHINE TOOL DIVISION

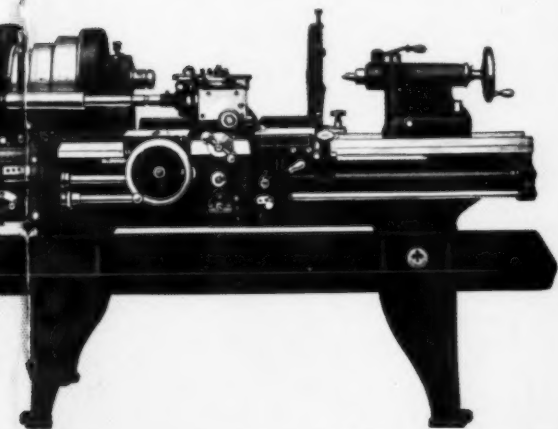
THE L. F. LE BLOND MACHINE TOOL CO.
CINCINNATI, OHIO, U. S. A.

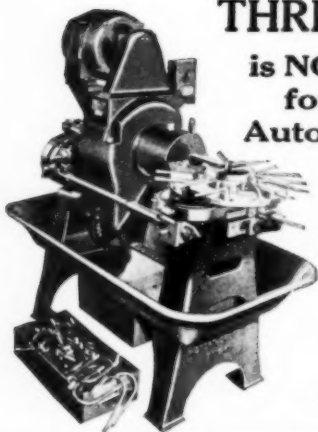
Builders of Lathes, Cutter Grinders,
Milling Machines, Aircraft Engines,
Electrical Tools



BLOND om Lathe

COMPLETELY DESCRIPTIVE
LITERATURE WILL BE
SENT ON REQUEST . . .





THREADING

**is NOT a Job
for Your
Automatics —**

**They weren't
made for
that purpose**

BUT—

**Here is a
Machine**

THAT IS!

RICKERT-SHAFER

AUTOMATIC THREADING MACHINE

Leading manufacturers have installed R-S Automatic Threading (Second Operation) Machines, thus relieving their automatics of what is usually the longest and costliest operation. For automatics must be kept on the work for which they are intended if they are to bring a return large enough to justify their high installation and operation costs.

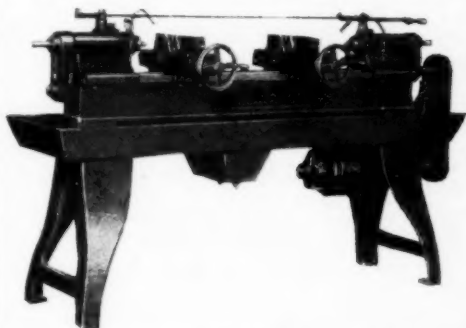
R-S Automatic Threading Machines are inexpensive to operate and are extremely versatile—they thread, drill, tap, face and chamfer. They speed up production and their low original cost is returned in no time.

Write for Descriptive Folder and Low Price

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Double End Centering Machine



For a Large Variety of Work

For centering both ends of a shaft simultaneously. Spindles operate together or independently. Left hand head is removable for long shafts.

Sundstrand Centering Machines are regularly furnished in a range of sizes with one or two spindle heads. Belt or motor drive. Also a complete line of Bench Centers. Special fixtures furnished when desired.

A surprisingly large variety of work can be accommodated on these machines.

Send for Bulletin No. 10H.

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Lathes—Milling Machines—Centering Machines—Balancing Tools
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Abolish Expensive Hand Finishing

with a



Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

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PEERLESS

**For Flat
Work**



8 Sizes

Write for Circular

PEERLESS SURFACING MACHINE CO., Inc.

TROY, N. Y.



The graphic shows a central machine tool table with various CAD standardized appliances connected to it by lines. The appliances include a vise, a drill press, a lathe, a planer, and a shaper. The text 'CAD' is in a box at the top, followed by 'Standardized set-up appliances' in a large, stylized font. Below this is a paragraph of text and the company name and address.

CAD
Standardized
set-up appliances

Why force your men to waste time on machine tool table set-ups when CAD standardized appliances will convert this non-productive time into productive labor?

STANDARD SHOP EQUIPMENT CO., Inc.
Set-up appliances for machine tools
 8135 Tinicum Ave., Phila., Pa.

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Test This New Production **CHAIR** At Our Risk

Here's a chair sold strictly on its merits. You can't appreciate its splendid usefulness and low cost until you see, test and compare it in your own plant. Just try one for strength, comfort and the same general wear and tear uses you would expect of such a product. We stand or fall by your decision.

Send coupon TODAY. Mark it and mail direct. We ship sample at once. No obligation to buy. Do it NOW.

The Chicago Wire Chair Co.
 616 N. LaSalle St., Chicago, Ill.
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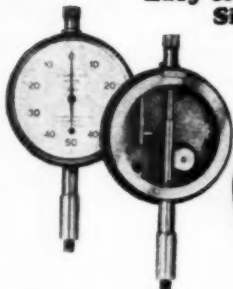
FREE TRIAL AND CATALOG

Let me try a Production Chair
 Graduated heights from 18-30" ☐

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**Easy Reading—Long Lived—
Simple—Accurate**



Note the few parts, the sturdy construction and simplicity of this new "STANDARD" Indicator. Built of the finest materials, with large, easy-to-read figures of distinct graduation — no shadows. The patent dust, grit and moisture proof cover fully protects the mechanism and insures long life.



*Send for Catalog
and Price List
of the entire
Standard
Line*

STANDARD GAGE COMPANY, INC.

Poughkeepsie, N. Y.

DETROIT

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Arnold Hardness Tester

**A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work**

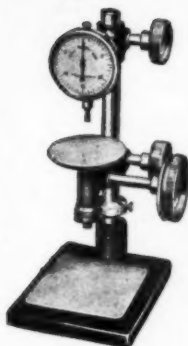
Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

*Worth more to you than its moderate cost
Write for more complete information*

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Bench Gauge

Model 35

Table can be operated by foot, leaving both hands of operator free. Can also be used as a comparator for gauging long stock by swinging table to one side. Table is 3" in dia., base is 4" square. Post 12" high, unless otherwise specified. Equipped with the famous FEDERAL Model 60 Dial Indicator.

*Write for complete Catalog
of the FEDERAL Line*

Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.



Ames Gauges for accuracy

Micrometer Dial Gauges
in a wide variety of dial
markings to fit all re-
quirements.

Upright Dial Gauges
with mountings for
testing parts speedily.

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Waltham, Mass.
902 Stephenson Bldg., Detroit



T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

PRICE \$40

Extra Punches, 20 cents each; extra dies, 30 cents.

Capacity $\frac{1}{4}$ " holes through $\frac{3}{16}$ " steel; $\frac{13}{32}$ " through $\frac{1}{4}$ " steel. Punches and dies in stock from $\frac{1}{8}$ " to $\frac{1}{2}$ ".

Immediate shipment from stock

**T. H. LEWTHWAITE
MACHINE CO.**

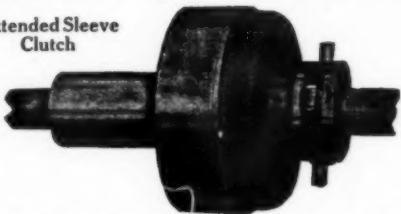
(Est. 1890)

311 E. 47th St., NEW YORK



Edgemont "Type B" Friction Clutch

Extended Sleeve
Clutch



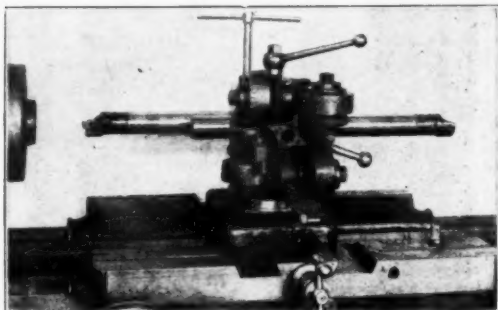
The "Type B" Friction Clutch is an improved expanding type. It fills the need of an efficient and inexpensive method of driving a large variety of machines.

Furnished in pulleys, extended sleeves and cut-off couplings.

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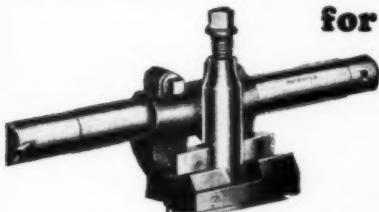
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**Only ONE Set-Up needed if You Use the
DUPLIX TURRET TOOL POST**
for Turning, Facing, Boring, Threading, Etc., Etc.



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Scully Adjustable Boring and Turning Bars for Lathes



Made to fit either
tool posts or cross
slides.

Large range of ad-
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Bars held rigid.

For boring, turn-
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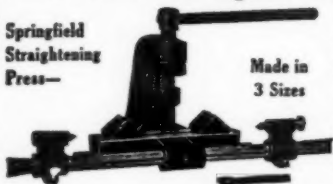
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Chicago, Ill.

Cut Your Straightening Costs

Springfield
Straightening
Press—



Made in
3 Sizes

Accurate
Straightening
Service in
Shop
Factory
Toolroom
Garage

The arrangement of the Springfield makes it the ideal tool for straightening any length of rough or finished work—truing sprung tools—or testing and balancing cams, crank shafts, etc. Placed on the bench it saves the operator's time by eliminating waste steps, and makes for quicker handling of the work.

Let us send you a folder illustrating its many uses

The Springfield Machine Tool Company

633 West Southern Avenue,

SPRINGFIELD, OHIO

We also manufacture Engine Lathes and Shapers

The Anderson
Ever-Ready

Balancing Ways



Are extremely sensitive and require no leveling—no adjustments—no centers.

Made of quality materials in several sizes to balance everything that revolves up to 24000 lbs. weight. You will find Andersons always ready, always accurate, and lasting in their service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Bem	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

Nicholson Expanding Mandrels

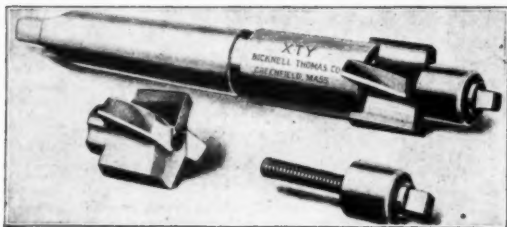


This one mandrel, the No. 4 size, will take every fractional part of an inch from 2" to 2 $\frac{1}{2}$ ". It would require 32 solid mandrels to do this in 64th sizes, and intermediate sizes could not be taken. Better order a few "Nicholsons."

Write us for further information

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.

Counterbore Cutters and Holders



All Bicknell-Thomas Counterbore, Core Drill and Flue Sheet Cutters are forged and twisted while hot, increasing original strength and density of our High Speed Steel, resulting in tools unexcelled for cutting efficiency with increased number of cuts per grind. Decided advantages of the Cutters are the shearing cut—powerful drive—less re-sharpening.

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Save Cutting Oil the Economical Way

One 40-inch Tolhurst Chip Wringer will handle more work with much less labor than several small machines. In the 40" and 48" Tolhursts, long curly turnings are handled as readily as small chips.

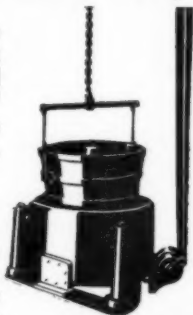
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Tolhurst Machine Works, Inc.

TROY, N. Y.

New York Office: 30 Church Street

Chicago Office: 8 So. Dearborn St.



Opened

Opened
Style E



**Hercules Shears
and Rod Cutters**

are the most powerful hand tools on the market. Made in several styles for bench and floor mounting. Capacities: Rod 1-8 to 3-4 in. diameter; sheet 1-16 to 6-16 in. thickness.

TUCKER OIL CUPS and OIL HOLE COVERS

COMPACT — DURABLE — ECONOMICAL
A Style and Size for Every Purpose

Easily closed by twist of fingers or self-closing. This feature means a dust- and grit-tight cup and prevents oil throwing during machine operation.



Style F

Send for Catalog No. 13 and Samples

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612 Capitol Ave., Hartford, Conn.

FOREIGN AGENTS: Fenwick Freres & Co., Paris, France.

Buck & Hickman Ltd., London, England.

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**GITS
BROS.**

**Better
Oilers**

287 Styles & Sizes



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RELIABLE

Hollow Bored Forgings and Steel Shafts



Made by specialists who have had years of experience in making the finest Lathe Spindles, Rams, Clutch Shafts, Piston Rods, Etc., Etc. They are built to your specifications of the best materials, for long service and efficiency at a very moderate price.

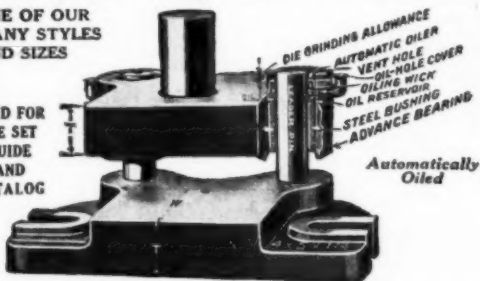
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Automatically Oiled Die Sets

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MANY STYLES
AND SIZES

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PATENTED
Jan. 30 1917

Type 6
MODEL 1925

**That Reaches Anywhere
AUTEX Extension Reel**

Here is a light that is not tied down—it goes wherever you need it. Brightens up the darkest corner or that almost inaccessible nook. Saves eye strain, prevents fatigue, speeds up production and so speedily pays for itself. Indispensable in Machine Shops, Service Stations and Industrial Plants of all kinds.

Try the AUTEX in Your Plant

Approved by the Underwriters

Equipped with Rubber Covered Cord

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The Cincinnati Specialty Mfg. Co., Inc.

1903 Powers St.,

Cincinnati, Ohio

DANLY DIE SETS

Immediate delivery from stock, standardized, interchangeable die sets—a type and size for every need. Special die sets built to specifications or designed to meet requirements. Send for Danly Catalogue—the Manual of the Metal Stamping Industry, used by over 15,000 designers, etc.



DANLY
STANDARD

Danly Machine Specialties, Inc.

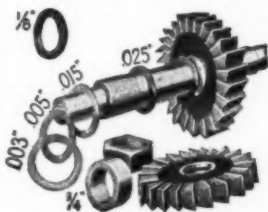
2116 S. 52nd Avenue, Chicago

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Cleveland Ohio, 1444 E. 49th St.

Long Island City, N. Y., 36-12 34th St.
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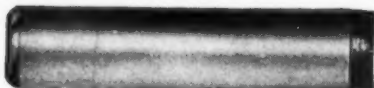
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Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

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*Bulletins and special low
prices sent upon request.*

ACME INDUSTRIAL CO.
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HARDINGE

COLLETS



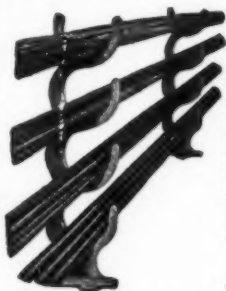
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in manufacturing any design collet—from the smallest to the largest size, either from sample or drawing, and including Screw Machine Collets.

Prices quoted on application

Hardinge Brothers Inc.
4149 Ravenswood Ave. Chicago Ill.

Inventory Time Is Coming!



Save Time and Temper—
Have Your Pipe, Shafting,
Bar Stock, etc., Piled on
“HANDIEST RACKS”

You can tell at a glance just what stock you have on hand, as they keep different lengths and sizes neatly assorted. Save 75% floor space too, for they fit in almost anywhere. Useful not only for storage purposes, but placed beside the operators of various machines they save time and labor and increase production.

*Be Prepared—Order Now
Shipped on Approval, If You Wish*

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503 Mahoning Road, N. E., Canton, Ohio

ATTENTION—Try This Tool

For 10 days. You will want
more of them



The **IMPROVED E-Z SET BORING TOOL**

Made in 3 Sizes

Compact, Simple in Construction, Positive Adjustment, TOOL
or PRODUCTION work—On Milling Machine, Boring Mill,
Drill Press, Lathe or Screw Machine.

Ask for our descriptive circular, with net prices

The Co-Operative Machinery Company
7514 Indiana Ave., Cleveland, Ohio

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RUBBER STAMPS



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BURNING
BRANDS



ETCHED METAL
NAME PLATES



BRASS
LABELS



THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.



The Blue Book

Goes to the Heart of 96% of
the Best Plants in the Country

The above statement is the result of careful mail inquiries directed
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"Keep Your Production on Wheels"



This is the message of a foremost efficiency expert.

The CanTon Portable Crane

does this for you! It makes it possible for one man to lift pieces weighing up to 6000 pounds, and to move those pieces to the most inaccessible part of your shop.

*A size for every use
Write for booklet E-8*

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New York Office: 101 West 31st Street

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Every minute spent by your high-priced mechanics digging out broken taps is a dead loss. When a tap breaks it should be *removed quickly*—

The Walton Tap Extractor

Will do this! Its steel finders back out the tap *without injuring the threads*. It will save you many hours in the course of the year—paying for itself over and over again. Made in three and four-flute styles.

So good we ship on 60-day trial

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302 Pearl St.,

Hartford, Conn.

Analysis of Circulation of HITCHCOCK'S MACHINE TOOL BLUE BOOK By Dun and Bradstreet Ratings

(Corrected to August 1st, 1929)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding \$1,000,000.....	1,883
\$500,000 to \$1,000,000.....	1,426
\$300,000 to \$ 500,000.....	1,348
\$200,000 to \$ 300,000.....	1,212
\$125,000 to \$ 200,000.....	1,675
\$ 75,000 to \$ 125,000.....	1,786
\$ 50,000 to \$ 75,000.....	1,507
\$ 20,000 to \$ 50,000.....	3,167
\$ 10,000 to \$ 20,000.....	2,084
\$ 5,000 to \$ 10,000.....	1,777

TOTAL to Private Concerns of over \$5,000.. 17,865

Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Dealers and Users, Etc.,..... 2,927

TOTAL to Buyers of Known Responsibility.. 20,792

*Concerns quoted in Dun or Bradstreet, but without Capital Rating..... 2,652

Concerns not yet in either Dun or Bradstreet, which includes new industries..... 1,514

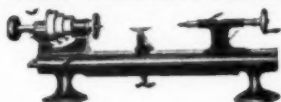
Concerns rated \$3,000 to \$5,000..... 620

TOTAL CIRCULATION 25,578

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

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The Catract Line



For Supreme Service—

Because they meet the modern demand for superior accuracy and workmanship—ask for catalog

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UTILITY - WIARD Quick Change CHUCKS

(Improved)

For The
**Rapid Changing of
Tools While The
Spindle Is
Turning**



**Quick
Accurate
Powerful
Dependable**

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DETROIT, MICH.

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Scherr Co., Geo., 144 Liberty St., New York
- Center Grinders**
Chicago Tool & Engineering Co., 8289 So. Chicago Ave., Chicago
- Centering Machines**
Sundstrand Machine Tool Co., Rockford, Ill.
- Chamfering Machines, Automatic**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Chaser Grinders**
National Acme Co., Cleveland, Ohio.
- Chucking Machines**
New Britain Mch. Co., New Britain, Conn.
Springfield Machine Tool Co., Springfield, O.
Stevens Inc., John B., 27 Cleveland Place, New York
- Chucks, Automatic and Quick Change**
Procurier Safety Chuck Co., 18 S. Clinton St., Chicago
- Chucks, Collet**
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bortone Ave., Chicago
Procurier Safety Chuck Co., 18 S. Clinton St., Chicago
- Chucks, Drill**
Etco Tool Co., Inc., 600 Johnson Ave., Brooklyn, N. Y.
Hartford Special Mch. Co., Hartford, Conn.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago
- Chucks, Drill and Tap**
Hicknell-Thomas Co., Greenfield, Mass.
Procurier Safety Chuck Co., 18 S. Clinton St., Chicago
Scully-Jones & Co., 1901 So. Rockwell St., Chicago
- Chucks, Lathe**
Stevens Inc., John B., 27 Cleveland Place, New York
- Chucks, Magnetic**
J. & H. Electric Co., Providence, R. I.
- Chucks, Oval**
Frew Machine Co., Philadelphia, Pa.
- Clamps, Die**
Daly Machine Specialties, Inc., 2116 So. 52nd Ave., Chicago
- Clutches, Friction**
Conway Clutch Co., Cincinnati, O.
Edgement Machine Co., Dayton, O.
Foots Bros. Gear & Machine Co., 111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Classified Finding Index

Cold Saws

Burke Machine Tool Co., Connecticut, Ohio

Collets

Amen Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Barton Ave.,
Chicago

Comparators

Federal Products Corp., Providence, R. I.

Contract Work Wanted

Burke Machine Tool Co., Connecticut, O.
Sherman-Klove Co., 8533 W. 47th St., Chgo.

Core Drills

Bicknell-Thomas Co., Greenfield, Mass.

Counterbores and Spot Facers

Bicknell-Thomas Co., Greenfield, Mass.
Glenzer Co., J. C., Detroit, Mich.
Scully-Jones & Co., 1901 S. Rockwell St.,
Chicago

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, O.
Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago

Couplings, Flexible

Foots Bros. Gear & Machine Co., 111 North
Canal St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Pa.

Couplings, Shaft

Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Pa.

Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights,
Canton Foundry & Mch. Co., Canton, Ohio

Crank Pin Turning Machine

Fedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating

Davis Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 1901 So. Rockwell St.,
Chicago

Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.
Reed-Prentice Corp., Worcester, Mass.
Scully-Jones & Co., 1901 S. Rockwell St.,
Chicago

Cutting-Off Machines

Scherr Co., Geo., 144 Liberty St., New York

Cylinder Boring Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Demagnetizers

J. & H. Electric Co., Providence, R. I.

Die Making Machines

Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening

Rickert-Shafer Co., Erie, Pa.

Die Sets

Baumach Mfg. Co., E. A., 1812 So. Kil-
bourne Ave., Chicago
Dandy Machine Specialties, Inc., 2116 So.
63rd Ave., Chicago
John H. Dorman, West New York, N. J.

Die Sinking and Engraving Machines

Keller Mach. Eng. Corp., 55A Washington
St., Brooklyn, N. Y.

Dividing Heads

Scherr Co., Geo., 144 Liberty St., New York
Stevens Inc., John B., 27 Cleveland Place,
New York

Drill Holders

Chicago Tool & Engineering Co., 8239 So.
Chicago Ave., Chicago

Drill Racks

Fourteen Machine Co., Racine, Wis.

Drilling Heads, Multiple

John H. Dorman, West New York, N. J.
Genterlein Machine Co., Cincinnati, Ohio
United States Drill Head Co., Cincinnati

Drilling Machines, Automatic

Baker Brothers, Inc., Toledo, Ohio,
Bradford Machine Tool Co., Cincinnati, Ohio
Superior Machine Tool Co., Kokomo, Ind.

Drilling Machines, Bench

Amen Co., B. C., Waltham, Mass.
Avey Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Ave.,
Chicago
Superior Machine Tool Co., Kokomo, Ind.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Boiler

National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Gang

Baker Brothers, Inc., Toledo, Ohio,
Superior Machine Tool Co., Kokomo, Ind.

Drilling Machines, Horizontal

Detroit Machine Tool Co., Detroit, Mich.
Frew Machine Co., Philadelphia, Pa.
Morris Machine Tool Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.
Stevens Inc., John B., 27 Cleveland Place,
New York

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio,
Detroit Machine Tool Co., Detroit, Mich.
Foots-Hurt Co., Cleveland, O.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Superior Machine Tool Co., Kokomo, Ind.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric

Hisey-Wolf Machine Co., Cincinnati, O.
Wall Tool Co., 7730 S. Chicago Ave., Chicago
National Elect. Prod. Co., 148 Baxter, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Post

Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Hammond Mfg. Co., Cleveland, Ohio,
Hisey-Wolf Machine Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Radial

American Tool Works Co., Cincinnati, O.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Dreesen Machine Tool Co., Cincinnati, O.
Hammond Mfg. Co., Cleveland, Ohio,
Morris Machine Tool Co., Cincinnati, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

Drilling Machines, Semi-Automatic
Detroit Machine Tool Co., Detroit, Mich.

Drilling Machines, Sensitive
Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Burke Machine Tool Co., Connecticut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
National Elect. Prod. Co., 148 Baxter, N.Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2455 N. Greenview Ave., Chicago

Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

Drilling Machines, Vertical
Avey Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Marsh Machinery Co., A. R., Cleveland, Ohio
National Elect. Prod. Co., 148 Baxter, N.Y.
Oesterlein Machine Co., Cincinnati, Ohio
Sigourney Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Stecher Co., Chas., 2455 N. Greenview Ave., Chicago

Superior Machine Tool Co., Kokomo, Ind.
Taylor & Fenn Co., Hartford, Conn.

Drilling Stands, Bench, Post and Radial
Hisey-Wolf Machine Co., Cincinnati, Ohio

Drills, Marble
Hisey-Wolf Machine Co., Cincinnati, Ohio

Drills, Twist
Cleveland Twist Drill Co., Cleveland, Ohio.

Emery Wheel Dressers and Cutters
Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand
Schwerdtle Stamp Co., Bridgeport, Conn.

Etching Machines, Electric
Brewster Co., Wm., Inc., 50 Church St., New York
Luma Electric Equipment Co., Toledo, Ohio.

Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Filing Machines
LaPorte Machine & Tool Co., LaPorte, Ind.
Oliver Instrument Co., Adrian, Mich.
Wardwell Mfg. Co., Cleveland, O.

Filing and Sawing Machines
LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery
Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7739 S. Chicago Ave., Chicago

Fluo Sheet Tools
Bicknell-Thoman Co., Greenfield, Mass.

Forges
Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop
New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gages, Cylindrical and Thread
Federal Products Corp., Providence, R. I.

Gages, Dial
Ames Co., B. C., Waltham, Mass.
Federal Products Corp., Providence, R. I.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Special
Standard Gage Co., Poughkeepsie, N. Y.

Gauges, Taper
Hartford Special Mch. Co., Hartford, Conn.

Gear Cutters
Brown & Sharpe Mfg. Co., Providence, R. I.
Triplex Machine Tool Corp., 60 Church St., New York

Gear Hobbors
Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St., New York

Gears
Boston Gear Works Sales Company, Norfolk Downs, Mass.
Chicago Stock Gear Works, 105 S. Jefferson, Chicago
Foots Bros. Gear & Machine Co., 111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone
Foots Bros. Gear & Machine Co., 111 N. Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Grinding Machine Work, Disc
Sherman-Klove Co., 3533 W. 47th St., Chgo.

Grinding Machine Att., Pneumatic Turbine
Onsrud Machine Works, Inc., 3910 Palmer St., Chicago

Grinding Machines, Angle Plate
Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Lehmann Machine Co., St. Louis, Mo.
Peerless Surfacing Machine Co., Troy, N.Y.
Wells Sales Corp., 95 Warren St., New York

Grinding Machines, Bench
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Mchs., Combination Buffer
Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Cutter, Resmer and Tool
Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarschl Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Oesterlein Machine Co., Cincinnati, Ohio
Oliver Instrument Co., Adrian, Mich.
Stevens Inc., John B., 27 Cleveland Place, New York
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cylindrical
Brown & Sharpe Mfg. Co., Providence, R. I.
Jarschl Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Grinding Machines, Die
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Gardner Machine Co., Beloit, Wis.
Hisey-Wolf Machine Co., Cincinnati, Ohio
Porter Cable Machine Co., Syracuse, N. Y.
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Drill
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External
Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor
Hisey-Wolf Machine Co., Cincinnati, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Flexible Shaft
Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Grinding Machines, Hob
Scherr Co., Geo., 144 Liberty St., New York

Grinding Machines, Internal
Chicago Tool & Engineering Co., 8289 So. Chicago Ave., Chicago
Hisey-Wolf Machine Co., Cincinnati, Ohio
Mall Tool Co., 8289 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Onsrud Machine Works, Inc., 3210 Palmer St., Chicago
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric
Chicago Tool & Engineering Co., 8289 So. Chicago Ave., Chicago
Hisey-Wolf Machine Co., Cincinnati, O.
Keller Mech. Eng. Co., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7790 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Porter Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, Ohio
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Lehmann Machine Co., St. Louis, Mo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Surface
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Illinois Machine & Mfg. Co., LaSalle, Ill.
Stevens Inc., John B., 27 Cleveland Place, New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool
Hill-Curtis Co., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, Ohio
Oesterlein Machine Co., Cincinnati, Ohio
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Tool Post
Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Universal
Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle
Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Wheel Dressers
Hisey-Wolf Machine Co., Cincinnati, Ohio

Hack Saw Blades
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.
Victor Saw Works, Inc., Middletown, N. Y.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hammers, Chipping and Chalking
Canton Pneumatic Co., Canton, Ohio

Hardness Testers
Arnold Co., H. H., Inc., Rockland, Mass.

Hob Grinders
Triplex Machine Tool Corp., 60 Church St., New York

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio

Hose Couplings
Hunt & Son, C. B., Salem, Ohio

Hydraulic Machinery
Lourie Mfg. Co., 565 Washington, Chicago

Index Centers, Single and Multi Spdl.
Brown & Sharpe Mfg. Co., Providence, R. I.
Pay & Scott, Dexter, Maine
Stevens Inc., John B., 27 Cleveland Place, New York

Indicators, Dial
Federal Products Corp., Providence, R. I.
Standard Gage Co., Foughkeepsie, N. Y.

Jigs and Fixtures
John H. Dorman, West New York, N. J.
Hartford Special Mch. Co., Hartford, Conn.
LaPorte Machine & Tool Co., LaPorte, Ind.

Keyseating Machines
Baker Brothers, Inc., Toledo, Ohio.
Burr & Son, John T., Brooklyn, N. Y.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
The Co-Operative Mch. Co., Cleveland, O.
Pay & Scott, Dexter, Maine
Head-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathe Turrets
The Co-Operative Mch. Co., Cleveland, O.

Classified Finding Index

Lathes, Bench

Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bortean Ave.,
Chicago

Lathes, Engine

American Tool Works Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Carroll & Jamieson Mch. Tool Co., Batavia, O.
Chard Lathe Co., Newcastl., Ind.
Cincinnati Lathe & Tool Co., Cincinnati, O.
Fay & Scott, Dexter, Maine
Hamilton Tool Co., Hamilton, O.
Hardinge Brothers, Inc., 1770 Bortean Ave.,
Chicago

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
McCabe Lathe & Machinery, Corp., J. J.
149 Broadway, New York
Monarch Machine Tool Co., Sidney, O.
Morris Machine Tool Co., Cincinnati, Ohio
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sebastian Lathe Co., Cincinnati, Ohio
Sidney Machine Tool Co., Sidney, Ohio
Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Hahn-Larmen Co., Cincinnati, O.

Lathes, Gap

Carroll Mch. Tool Co., A. V., Cincinnati, O.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.

Lathes, Hand

Stevens Inc., John B., 27 Cleveland Place,
New York

Lathes, Hydraulic Automatic

Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Precision

Bradford Machine Tool Co., Cincinnati, Ohio
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.

Lathes, Short Bed

Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathes, Tool Room

Bradford Machine Tool Co., Cincinnati, Ohio
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.

Lathes, Turret

Bradford Machine Tool Co., Cincinnati, O.
Chard Lathe Co., Newcastl., Ind.
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Lehman Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Millers, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Cincinnati Milling Mch. Co., Cincinnati, O.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Stevens Inc., John B., 27 Cleveland Place,
New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

The Co-Operative Mch. Co., Cleveland, O.

Milling Machine Work

Sherman-Klove Co., 3533 W. 47th St., Chgo.

Milling Machines, Automatic

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frew Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Cincinnati Milling Mch. Co., Cincinnati, O.
Frew Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Mchs., Oil Grooves for Half Bearings

Lehmann Machine Co., St. Louis, Mo.

Milling Machines, Plain

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Cincinnati Milling Mch. Co., Cincinnati, O.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Rotary

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Spine

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.
Cincinnati Milling Mch. Co., Cincinnati, O.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Vertical

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Cincinnati Milling Mch. Co., Cincinnati, O.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Reed-Prentice Corp., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

- Nut Setters, Electric**
Hisey-Wolf Machine Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York
- Oil Caps**
Gits Bros. Mfg. Co., 1940 S. Kilbourn Ave., Chicago
Tucker, W. W. & C. F., Hartford, Conn.
- Oil Extractors**
Tolhurst Machine Works, Troy, N. Y.
- Pins, Leader And Dowel**
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago
Danty Machine Specialties, Inc., 2116 S. 52nd Ave., Chicago
- Pipe Bending Machines**
Fadrick Tool & Machine Co., Philadelphia
- Planers, Valve Seat, Portable**
Fadrick Tool & Machine Co., Philadelphia
- Planing Machines**
Cincinnati Planer Co., Cincinnati, Ohio
Cleveland Planer Co., Cleveland, Ohio
- Point Thinning Machines**
Oliver Instrument Co., Adrian, Mich.
- Polishing and Buffing Machines**
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Mail Tool Co., 7780 S. Chicago Ave., Chicago
New Britain Machine Co., New Britain, Conn.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
- Presses, Arbor**
Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., 565 Washington, Chicago
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 3258 Cottage Grove Ave., Chicago
Wilson, R. E., Buffalo, N. Y.
- Presses, Broaching**
Lourie Mfg. Co., 565 Washington, Chicago
- Presses, Drawing**
Lourie Mfg. Co., 565 Washington, Chicago
- Presses, Flanging**
Lourie Mfg. Co., 565 Washington, Chicago
- Presses, Foot**
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.
- Presses, Forging**
Lourie Mfg. Co., 565 Washington, Chicago
- Presses, Forming**
Lourie Mfg. Co., 565 Washington, Chicago
- Presses, Power**
Hendley & Whittemore Co., Beloit, Wis.
Lourie Mfg. Co., 565 Washington, Chicago
Rockford Iron Works, Rockford, Ill.
- Presses, Punch**
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.
- Presses, Screw**
Jaracki Mch. & T. Co., Grand Rapids, Mich.
- Presses, Wheel**
Lourie Mfg. Co., 565 Washington, Chicago
- Profiling Machines**
Frew Machine Co., Philadelphia, Pa.
Oliver Instrument Co., Adrian, Mich.
- Pulley Machinery**
Avery Drilling Machine Co., Cincinnati
- Pulleys, Iron, Solid and Split**
Conway Clutch Co., Cincinnati, O.
Jones Foundry, W. Roosevelt Road, Chicago
- Pumps, Coolant**
Fulfilo Specialties Co., Manchester, O.
- Pumps, Hydraulic**
Lourie Mfg. Co., 565 Washington, Chicago
- Pumps, Lubricant**
Ruthman Machinery Co., Cincinnati, O.
- Punch Press Feeds**
Rockford Iron Works, Rockford, Ill.
- Punch Press Work**
Sherman-Klove Co., 2638 W. 47th St., Chgo.
- Punch, Shear and Bender, Hand**
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
- Punches, Hand**
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.
- Punches, Power**
Hendley & Whittemore Co., Beloit, Wis.
- Punches and Dies**
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.
- Punches and Shears**
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
- Racks, Bar Stock**
New Britain Machine Co., New Britain, Conn.
Yeh Supply Co., Wm. S., Canton, O.
- Reamer Holders**
Nicholson & Co., W. H., Wilkes-Barre, Pa.
- Reamers, Adjustable**
Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach-Hunt Tool Co., Cincinnati, O.
- Reamers, Portable Electric**
Hisey-Wolf Machine Co., Cincinnati, Ohio
- Reels, Extension**
Cincinnati Specialty Mfg. Co., Cincinnati, O.
- Riveters, Multiple Spindle**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Riveters, Pneumatic**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Riveting Machine Equipment**
Linley Bros. Co., Bridgeport, Conn.
- Riveting Machines**
Buffalo Forge Co., Buffalo, N. Y.
Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. F., Hartford, Conn.
- Rad Cutters**
Armstrong-Hum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.
- Rotary Tables, Hand Feed**
Stevens Inc., John B., 27 Cleveland Place, New York

Classified Finding Index

Safety Stops

Atlantic Co., Chappaqua, N. Y.

Saw Sharpening Machines

Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Read-Prentice Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Hiley Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic

Reynolds Machine Co., Massillon, Ohio

Screw Machine Products

National Acme Co., Cleveland, Ohio.
Sherman-Klove Co., 3533 W. 47th St., Chgo.

Screw Machines, Automatic

National Acme Co., Cleveland, Ohio.
New Britain Mch. Co., New Britain, Conn.
Townsend Mfg. Co., E. P., Hartford, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 6001 N. Lincoln St., Chgo.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Beloit, Wis.
Leithwaite Machine Co., T. H., 311 E. 47th St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power

Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Beloit, Wis.

Slotting Machines, Screw Head

Stevens Inc., John B., 27 Cleveland Place, New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foots Bros. Gear & Machine Co., 111 North Canal St., Chicago
Illinois Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.
Read-Prentice Corp., Worcester, Mass.
Reicher Co., Chan., 3452 N. Greenview Ave., Chicago
Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and Herringbone

Foots Bros. Gear & Machine Co., 111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Ohio Gear Co., Cleveland, Ohio.

Spot Welding

Sherman-Klove Co., 3533 W. 47th St., Chgo.

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Sprockets

Foots Bros. Gear & Machine Co., 111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Stop Motions

Atlantic Co., Chappaqua, N. Y.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procurer Safety Chuck Co., 18 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Bicknell-Thomas Co., Greenfield, Mass.
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
Scully-Jones & Co., 1901 S. Rockwell St., Chicago, Ill.

Tapping Machines and Attachments

Avery Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Bicknell-Thomas Co., Greenfield, Mass.
Burke Machine Tool Co., Connecticut, Ohio
John H. Durman, West New York, N. J.
Ekco Tube & Tool Co., Inc., 600 Johnson Ave., Brooklyn, N. Y.
Frew Machine Co., Philadelphia, Pa.
Hammond Mfg. Co., Cleveland, Ohio
Leland-Gifford Co., Worcester, Mass.
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
Rickert-Shafer Co., Erie, Pa.
Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colven, J. M., Yonkers, N. Y.

Thread Millers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St., New York

Threading Machines

Rickert-Shafer Co., Erie, Pa.

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Classified Finding Index

Tool Banks

Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts

Conradson, C. M., Green Bay, Wis.
Fay & Scott, Dexter, Maine

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Norfolk
Downs, Mass.

Used and Rebuilt Machinery

American Tool Works Co., Cincinnati, Ohio
Armstrong & Broe Co., R. S., Atlanta, Ga.
Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 60 Church St., New York
Bernstein & Co., Geo. M., 221 N. Elizabeth
St., Chicago
Blaser Mfg. Co., J., Springfield, Ill.
Broadway Machinery Co., 211 Centre St.,
New York, N. Y.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Carlson Machinery Co., Davenport, Iowa
Cincinnati Mch. & Supply Co., Cincinnati, O.
Clinton Mch. Co., 128 S. Clinton St., Chgo.
Co-Operative Mch. Co., Cleveland, Ohio.
Davis Machinery Exchange, Toledo, O.
Detroit Machinery Exchange, Detroit, Mich.
Donahue Steel Products Co., 74th and
Ashland Ave., Chicago
Eastern Machinery Co., Cincinnati, O.
Emmerman & Co., Louis E., 1761 Elston Ave.,
Chicago
Empire Machinery Exchange Co., Inc.,
Cleveland, Ohio
Esley Machinery Co., E. L., 651 Washington
Bldg., Chicago
Foster Machinery Co., Cleveland, O.
Harris Bros. Co., 35th & Iron Sts., Chicago
Hill, Clarke & Co., 649 W. Washington
Bldg., Chicago
Hyman & Sons, Joseph, Philadelphia
Indianapolis Mch. & Supply Co., Indian-
apolis, Ind.
International Mch. Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. C.,
St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, O.
Kinsey Co., E. A., Cincinnati, O.
Klauber Mch. Co., E. L., St. Louis.
Little Co., W. F., Cleveland, O.
Lucas & Son, Inc., J. L., Bridgeport, Conn.
McCabe Lathe & Machinery Corp., J. J.,
149 Broadway, New York
McDonald Machinery Co., St. Louis
Manning, Maxwell & Moore, Inc., 27 No.
Jefferson, Chicago
Marr-Galbreath Mch. Co., Pittsburgh, Pa.

Used and Rebuilt Machinery—Cont.

Mid-West Machine Tool & Supply Company,
Davenport, Iowa
Miles Machinery Co., Sarinaw, W. S., Mich.
Molitor Machy. Co., Chas., 118 S. Clinton St.,
Chicago
Morey and Co., Inc., 408 Broome St., N. Y.
Morris Machine Tool Co., Cincinnati, Ohio
Morton Mch. Co., H. L., Cleveland, Ohio
Motch & Merryweather Machinery Co.,
Cleveland, O.
Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Machy. Co., Columbus, O.
Palmer-Edwards Co., Flint, Mich.
Randle Machinery Co., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.
Reese-Fritts Co., 658 W. Washington, Chgo.
Rentachler & Co., J. P., 607 W. Washington
Bldg., Chicago
Relliance Mch. Sales Co., Pittsburgh, Pa.
Riverside Machinery Depot, Detroit, Mich.
Rosenfeld Mch. Co., 942 W. Lake St., Chgo.
Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch. Co., 130 S. Clinton,
Chicago
Selfreast-Elsard Machinery Co., Dayton, O.
Stockman, John A., 240 W. 25th St., N. Y.
Stoehr Machinery Co., A. M., 418 Mid-City
Bank Bldg., Chicago
Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland
Sun Machinery Co., Newark, N. J.
Syracuse Supply Co., Syracuse, N. Y.
Taylor-Hall Welding Corp., Worcester, Mass.
Toledo Machinery Exchange, Toledo, Ohio
Tubor-Velick & Co., 630 W. Lake St., Chgo.
United Mch. & Supply Co., St. Louis
Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.
White Machy. Co., A. D., 108 N. Jefferson
St., Chicago
Wigglesworth Machinery Co., Boston, Mass.
Winterer, Herman L., Philadelphia

Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Barker & Co., Wm., Covington, Ky.
Marsh Machinery Co., A. R., Cleveland, Ohio
Martin Tool & Die Works, J. E., Springfield, O.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Hartford Special Mch. Co., Hartford, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Stevens Inc., John R., 27 Cleveland Place,
New York

Vises, Shaper

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Wood Working Machinery

Frew Machine Co., Philadelphia, Pa.
Hendley & Whittemore Co., Beloit, Wis.
New Britain Machine Co., New Britain, Conn.
Porter-Cable Machine Co., Syracuse, N. Y.

Worms

Massachusetts Gear & T. Co., Woburn, Mass.
Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago

"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

All Sizes Carried in Stock

Catalog on Request

The Schellenbach-Hunt Tool Co.

118 Opera Place, Cincinnati, Ohio

Agents: E. E. Fletcher, 6607 Euclid Ave., Cleveland, Ohio

Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

FOR SALE BY

W. H. Hobbs Supply Co., - - - - **Eau Claire, Wis.**

Miller, No. 3 Cincinnati universal, with 12x48 slotted table, 220 volt d. c. motor attached, variable speed.
 Miller, No. 4 Cincinnati plain, 16x60 slotted table, 220 volt d. c. variable speed motor attached.
 Miller, Brown & Sharpe plain, 15x60 slotted table, 3 step cone, friction c. s.
 Milling machine, No. 5 Brown & Sharpe plain, 16x72 slotted table, 3 step cone, friction countershaft.
 75 other machine tools.

FOR SALE BY

Nelson Machinery Co., 123 N. Pearl St., Green Bay, Wis.

Bending machine, 6C Wallace, with motor and dies.
 Boring mill, 42" Gisholt vertical, one turret and one swivel head, arranged for motor drive.
 Drills, Detroit 5-spindle, semi-auto. (2) each, \$400.
 Drill press, 5' Drees full universal radial, with m. d. arranged.
 Pipe machine, No. 14 Jarecki 2½ to 8", q. c., adjustable dies.
 Polishing and finishing machine, Production type A, with motor.
 Riveter, No. 81 Grant rotary, ½ h. p., 3 ph. 60 cy., 220 volt vertical motor.

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Taylor-Winfield 2 k. w.	Winfield B50SA, cap. ½"
Taylor-Winfield 7½ k. w. 10" horns.	Thomson 2A auto., cap. ½"
Federal 10 k. w. 12" adj. horns,	Thomson 7A auto., cap. ½"
Toledo 20 k. w. 30" horns.	Winfield B-103, cap. ½"
National 30 k. w. 25" horns.	Toledo No. 3, cap. ½"
National 35 k. w. 25" horns.	Toledo 8B, cap. ½"

New machine guarantee with every welder.

FOR SALE BY

Carlson Machinery Co., Inc., - - - **Davenport, Iowa**

Boring mill, 36" Bullard, 2 heads.	Lathe, 14"x6' Lodge & Shipley.
Boring mill, 60" Niles, 2 heads.	Miller, No. 1 Milwaukee universal,
Grinder, 24" Inger, cutter, tub type.	dividing hd., vertical attachment,
Grinder, 10x20 Landis universal.	slotting attachment, rotary table.
Lathe, 7"x32" Pratt & W. bench.	Planer, 16"x4' Hendey.
Lathe, 8"x38" Rivett bench, 9 collets.	Press, No. 1 Marshalltown o. b. i.
Lathe, 11"x3' Blount speed.	Press, No. 30 Crosby.
Lathe, turret, 14" cap., bar feed, with	Press, No. 82 Crosby foot kick pr.
30 collets.	Press, No. 2 Springfield straightening

USED AND REBUILT MACHINERY

FOR SALE BY

General Machinery Corporation,

Drill, Sibley 24" al. hd., b. g., p. f.
Drill, Myers 14" with rd. & sq. tables.
Gas forge, American No. 2.
Lathe, Cataract precision bench,
7"x32", 1" column capacity.
Miller, Burke No. 2 bench.

170 Summer St., Boston, Mass.

Motor, G. E., 50 h. p., 1200 r. p. m.,
350-3-50.
Oven furnace, American No. 16.
Press, Cons. No. 3, flywh., 2" stroke.
Shear, Bliss No. 165 rotary.
Turret lathe, Warner & Swasey 14".

FOR SALE BY

Davis Machinery Exchange,

1-3-5 So. St. Clair St., Toledo, Ohio

Air compressor 4x5 Ingersoll-Rand.
Air compressor, 6x6 Chicago pneu-
matic, tank.
Air compressor, 6x5 Ingersoll-Rand.
Bolt threader, 4" Landis dbl. head.
Bolt threaders, 1 1/2" and 2" National.
Boring mill, 24" Bullard vertical,
new era head.
Brake, 8" Chicago, cap. 18 ga.
Drill, 20" Barnes camel back.
Drill, 20" Barnes, 4-spindle.
Drill, Leland-Gifford high speed,
motor drive.
Drill, No. 310 Baker hvy. duty, (2).
Drill, 34" Carlton radial, g. b., s. p. d.
Drill, 4" Hammond hinged arm
radial, tapping attachment.
Drill, 3" gang radial, tapping attach-
ment, universal table.
Drill, 16" Kern hi-speed.
Drill, 2-spindle Allen sensitive.
Drill, 4-spindle Foote-Burt rail.
Drill, 6-sp. Nat. Acme horizontal.
Forming rolls, 66" Pettingell hand.
Grinder, No. 2 Gardner disc. comp.
Grinder, No. 19-53" Besly vert. disc.
Grinder, No. 4 Gardner disc comp.
Grinder, No. 4 Gardner disc, 15 h.
p. motor drive.
Grinder, No. 1 Greenfield plain,
5"x13 1/2" hydraulic feed.
Grinder, 8"x18" Ott plain.
Grinder, 10"x36" Landis pl. self-con.
Grinder, No. 60 Heald cylinder.
Grinder, Walker universal.
Groover, 42" Toledo power.
Hammer, 4" Schuster riveting.
Hammer, No. 18-B High Speed
riveting, m. d.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No. 2 Baker.
Keyseater, No. 2 Davis.
Lathe, 19"x10" Sidney q. c. g.
Lathe, 9"x18" Porter-Cable.
Lathe, 14"x6" Monarch q. c. g., chuck
Lathe, 16"x6" Monarch q. c. g., chuck
Lathe, 16"x8" Oliver q. c. g., engine.
Lathe, 16"x8" Monarch l. c. g., eng.
Lathe, 22"x9" National q. c. g., en-
gine, geared hd., single pulley dr.
Lathe, engine, 18"x7" Lehmann, q.
c. g., chuck.
Lathe, 18"x8" Perfection q. c. g., eng.

Lathe, engine, 24"x17" Greaves-K.,
l. c. g.
Mill, No. 1 Cincinnati universal.
Mill, No. 2 Rockford universal, in-
dex head, complete.
Mill, 1 1/2"-A B. & S. universal, s.p.d.
Mill, No. 3 Brown & Sharpe univ.
Mill, No. 1 1/2 Cincinnati plain, all
geared feeds.
Mill, No. 2M Potter & J. horizontal.
Mill, A. B. Becker vertical.
Mill, No. 2 Brown & Sharpe plain.
Mill, No. 6 Whitney hand.
Mill, No. 12 B. & S. production, (2).
Miller, Fox hand.
Miller, Garvin hand.
Milling and drilling machine, No. 1 1/2
Knight.
Oil separator, American.
Pipe threader, 4" Merrill, full set of
dies.
Planer, 24"x24"x6" Lodge & D. 1 hd.
Press, arbor, No. 28 Atlas.
Press, arbor, No. 3 Greenerd.
Press, No. 51 Toledo arch. grd., 7" str.
Press, No. P1 Ferracute s. b.
Press, No. P2 Ferracute s. b.
Press, No. 4 Adriance o. b. i.
Press, No. 4 Toledo o. b. i., flywheel.
Press, No. 54 Consolidated o. b. i.
Press, No. 6 Bliss horiz. heading.
Press, No. 42 Toledo horning, flyw.
Press, John Evans multiple shear-
ing, punching or trimming.
Punch and trimmer, John Evans
double end.
Riveter, Eveland electric.
Rolls, John Evans large tapering.
Rolls, 60" Hendley & Whittemore
power forming, 14 gauge.
Screw machine, No. 1 Warner & S.
Screw machine, No. 6 Warner & S.
Screw machine, No. 7 Foster.
Shaper, 10" Gould & E. crank.
Shaper, 16" American crank b. gr.
Shaper, 20" Mattison crank, b. g.
Shaper, 24" G. & E. crank, b. g.
Shaper, 24" Milwaukee cr. bk. grd.
Shear, No. 136 J. M. Robinson pwr.
square, cap. 30"x15 gage.
Welder, 10k. w. Federal spot, 220 v.
Welder, 50 k. w. Taylor spot, 440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Banbach Machinery Co., 130 So. Clinton St., Chicago, Ill.

Auto. screw mach., 1½" Gridley 4 spindle model F.....	\$ 950.
Auto. screw mach., Cleveland, 8", Model A.....	150.
Bolt cutter, 2" D. & H., double head.....	300.
Drill, 21" Cincinnati sta. head, with tapping attachment.....	200.
Drill, 24" Rockford sliding head, back geared and power feed.....	200.
Drill, 28" Superior, sliding head, back geared and power feed.....	325.
Drill, 1-spindle No. 3 Avey with tapping.....	275.
Drill, 3-spindle 14" Avey h. s., b. b., old style.....	200.
Drill, 4-spindle 14" Avey high speed, b. b., old style.....	300.
Drill, 4-spindle 15" Superior h. s., b. b., q. c. No. 3 Morse taper.....	550.
Drill, radial, 3' American sensitive.....	200.
Drill, 20"—2-spindle Hoefler power feed.....	250.
Gear cutter, B. & S. No. 3 26" for spur gears.....	450.
Grinder, 24" Diamond disc, with disc and ring wheel.....	300.
Grinder, 26" Ransom disc, 3 tables.....	350.
Grinder, No. 65 Heald, with fixtures, b. b. spindle.....	900.
Grinder, No. 1½ Cincinnati cutter and tool.....	450.
Grinder, No. 2 Norton universal cutter & tool, p. f.....	550.
Grinder, No. 11 B. & S. plain 6"x32".....	750.
Grinder, 12"x48" Modern plain, self contd., c/s.....	750.
Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel.....	2,000.
Hammer, No. 5A High Speed riveting.....	400.
Lathe, 14x6 Hendey q. c., taper and draw-in.....	450.
Lathe, 14"x8" Flather, quick change, taper and chuck.....	250.
Lathe, 16x8 South Bend with gap 24" standard change, new.....	550.
Lathe, 18"x9" Chard semi-quick change gear.....	400.
Lathe, 19"x11" Chard, semi-quick change gear.....	425.
Miller, Whitney, Standard and U. S., hand.....	125.
Miller and drill, No. 1 Knight.....	200.
Miller, No. 1 Garvin universal, fully equipped.....	600.
Miller, Briggs, G. & E. manufacturing, 16".....	200.
Miller, No. 5 Becker vertical, no rotary.....	500.
Miller, No. 7 Becker, Lincoln type.....	150.
Miller, No. 21 Garvin power feed, oil pump.....	150.
Miller, Hendey, Lincoln type.....	100.
Miller, No. 12 Brown & Sharpe production type.....	350.
Miller, Ingersoll slab, 42"x36"x9".....	1,750.
Oil separator, National, about ½ bushel.....	75.
Planer, 24"x24"x6" Cincinnati, 1 head.....	500.
Planer, 24x24x8 Fitchburg, 1 head.....	400.
Planer, 32x32x8 Pond, 1 head.....	750.
Planer, 36"x36"x12" Cincinnati with 2 heads.....	1,500.
Press brake, 10' Ohl power, No. 10 gauge.....	1,900.
Shear, No. 772 Niagara 3/16x72", m. d.....	750.
Shear, L. & A. No. 2 cap. 3/16"x16" with gap.....	2,500.
Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor.....	175.
Screw machine, P. & W. 1x4, complete.....	150.
Shaper, 16" Steptoe, crank, back geared, vise and c/s.....	425.
Shaper, 16" Smith & Mills, back geared vise and countershaft.....	450.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s.....	750.
Shaper, 20" Ohio, crank, back geared, vise and c/s, nearly new.....	900.
Shaper, 25" Steptoe crank, back geared, vise and c/s.....	750.
Shaper, 24" Rockford universal combination.....	1,100.
Slotter, 12" Putnam universal.....	1,000.
Turret lathe, 2x10" Millholland, for chuck and bar work.....	750.
Turret lathe, No. 7 Foster for chuck and bar work.....	750.
Turret lathe, No. 10 Foster for bar work 3½".....	850.
Turret lathe, No. 2A Warner & Swasey, with chucking equipment.....	1,500.
Turret lathe, 24" Steelee, 4" hole, side carriage.....	700.

USED AND REBUILT MACHINERY

FOR SALE BY

Syracuse Supply Company. 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:
Pipe machine, No. 70 Forbes.

Exceptional values in USED TOOLS:

Bolt threader, Acme 2-spindle, with one head, $\frac{1}{2}$ " capacity.
Drill, Barr 4-spindle, 8" overhang.
Grinder, Blount 14x14 wet tool, m. d.
Knife grinder, 30".
Lathe, 8x50 Fitchburg lo-swing.
Lathe, 26"x10" Cooper Bros., #125.
Millers, Wisconsin hand, (3).
Pipe threader, Jarecki belt drive.
Radial, 5' Pond.

Radial, 5' Dreses, single pulley drive, gear box, \$475.00.
Rip saw, No. 24 Powers, self feed, power.
Screw machine, No. 24 Garvin.
Thread miller, No. 12 Lees Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster, (2).
Turret lathe, 24x26 Pratt & Whitney.

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

30"x16" Niles-Bement-Pond.
24"x16" New Haven, loose clange.
30"x14" Prentice q. c.
27"x14" Pond, q. c.
13-26"x14" Putnams, semi-quick.
24"x14" Lodge & Shipley, q. c.

21"x12" LeBlond, q. c.
19"x10" LeBlond q. c.
20"x10" Bradford, loose change.
16"x 8" Bradford, taper.
16"x 8" Lodge & Shipley, q. c.

MILLING MACHINES.

No. 3 LeBlond plain.
No. 3 Cincinnati, single pulley.
26" Oesterlein universal.
No. 4 B Brown & Sharpe heavy duty.
No. 4 Cincinnati universal.

No. 4 Cincinnati vertical sgl. pul.
No. 3 Brown & Sharpe, vertical.
No. 2 Cincinnati, vertical.
No. 12 Pratt & Whitney, Lincoln type
Owen two-spindle.

BORING MILLS.

24" New Era.
36" Niles, 2 heads.
34" Bullard, 1 head.
42" Gisholt, 2 heads.

42" Niles-Bement-Pond, 2 heads.
50" Niles, 2 heads.
72" Wais & King, 2 heads., \$1,500
6" Gray horizontal.

PLANERS.

24"x24"x8" Ohio.
24"x24"x 8" Pond, 2 heads.
24"x24"x 8" Putnam, 1 head.
30"x30"x 16" Gray, 2 heads.
48"x16" Detrick & Harvey open side.

48"x10" Belmer, 4 heads.
48"x16" Cincinnati, 4 heads.
24"x 8" Smith & Silk, 1 head.
Whitcomb crank planer.

DRILLS AND RADIALS

3-spindle Henry & Wright, 7".
4-spindle Reed sensitive.
3-spindle Reed sensitive.
6-spindle Reed sensitive.
24" Barnes, camel back.
3" Morris, single pulley, gear box.

3' Fosdick, cone drive.
34" Fosdick, motor drive.
44" Morris radial, arr. m.d., with mtr.
5" American, semi-univ., sgl. pulley.
5" universal, old style.
6" American plain radial, sgl. pul. dr.

MISCELLANEOUS.

Automatics, Model B Cleveland (2).
Bending brakes.
Bolt cutter, 2-sp. Acme 14".
Compressor, 13/8x10" Worthington, belt drive.
Drill 20" Aurora, tapping att.
Gear hobber, Cincinnati.
Grinders, Nos. 4 & 120 Gardner disc.
Hack saw, 10" Massachusetts.
Hammer, Bradley helve.
Hammers, Bradley strap.
Presses, Toledo, Long & Allstater
& Losbough & Jordan inclinable.
Press, No. 6 Consolidated, inc.

Press, No. 62 Bliss power.
Press, 150 ton Caldwell wheel.
Punch and shear No. 3 H. & J. d. e.
Saw, 9"x9" Peerless.
Shaper, 25" Smith & Mills, m. d.
Shaper, 25" Queen City, s. p. d.
Shears, 6' 8", 10' power.
Shear, No. 252 Niagara pwr., 6' cap.
Slotter, 20" Dill.
Threading mche., Auto. Mch. Co.
Turret lathes, 24" Gisholt, with motors (2).
Turret lathe, No. 4 Warner & S.

More than 300 machines tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Blowers, Root No. 4, 500 c. p. m.
Blowers & exh., 6, 8, 9 & 16" opening.
Bolt cutters, 14" Landis, 2 heads.
Bolt cutters, 12" Morgan, 2 heads.
Brake, 8"x18 ga. Chicago, hand.
Brake, 8"x12 ga. power, Chicago.
Burnishing barrel, 24"x16" glass lined
Cold header, 1" W-F., solid die.
Cold header, 3/4" W-F., solid die.
Cold saws, Nos. 11 1/2 and 12 Higley.
Draw bench, Oliver, 6", 275 lb.
Drill, electric, 1" cap., 110 v., univ.
Drill, 20" Prentice, plain.
Drill, 29" Superior, b. g., s. h.
Drill, radial, 30" Taylor & Fenn.
Drill, radial, 10' for m. d., (cheap).
Drills, radial, 5' and 7' Prentice.
Drills, radial, 3 1/2' Bickford.
Furnace, rotary annealing, 12"x8'.
Furnace, gas hardening, 10"x6"x12'.
Furnaces, oil tempering, 10"x10"x10'.
Gear and pinion cutter, No. 3 Sloan.
Grinder, No. 1 Norton universal tool and cutter.
Grinder, No. 11 B. & S., plain.
Grinder, surface, No. 1 W. & M., m. d.
Grinder, 12" Bristol, rotary surface.
Hack saws, 8" Atkins, rotary, 1/60/220.
Hack saws, 8" Economy.
Hack saw, 12"x12" Racine, belted.
Hammers, 40 & 80 lb., Bradley helve.
Hammers, 75 lb. Bradley upright.
Hammer, 2-B. Nazel, belt and motor
Hammers, atm. s. f. 600, 1100, 1500 lbs.
Hammer, 1000 lb. Chbg., steam drop.
Hardness tester, style A. Brinnell.
Hoist, 4 ton Y & T high speed.
Hoist, chain 1-ton, high speed.
Hoist, 1 ton C & M spur gear.
Hoists, air, 700, 800 & 1300 lbs.
Keyseaters, No. 00 & No. 2 Baker.
Keyseater, No. 1 Davis, cutters, new.
Keyway cutter, 24" Morton, cap. 2 1/2".
Lathe, 9"x3" Shepard, speed.
Lathe, 14"x8" Monarch, t. a.
Lathe, 14"x6" Lodge & S., q. c. g.
Lathe, 14"x6" Hendey, q. c. g., t. a.
Lathe, 15"x7" South Bend, q. c. g.
Lathe, 16"x8" Hendey, q. c. g.
Lathe, 18"x10" L. & S., d. c. motor.
Lathe, 24x10 Pgh—\$250.
Lathe, 26"x10" Walcott, q. c. g.
Lathe, 26"x10" Bridgeford q. c. g. pan.
Lathe, 21"x14" LeBlond, g. h.
Lathe, 36"x64" Bridgeford gun bor.
Lathe, 30"x10" Sidney, q. c. g., t. a.
Lathe, pattern maker's, 24"x11"
Miller, vertical, No. 3 Becker, cone.
Miller, 18" Cincinnati, plain cone.
Miller, No. 4 Brown & Sharpe, univ.

Motor, 7 1/2 h. p., 3/60/220/1800.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Motor, 20 h. p., 3/60/220/1200.
Nibbling mche., Cambell 6" m. d.
Paper slitter, 15" Jacques, bench.
Pipe machine, 12" Williams, s. p. d.
Pipe machine, 4" Williams, m. d.
Planers, 48x48x20", 3-heads, Gray.
Planers, 33x33x10", 2-hds., W. & P.
Planer, 22"x22"x5" Cincinnati, 1 hd.
Press, No. 3A Bliss, adj. table.
Press, No. 94 Bliss, punch type.
Press, No. 1 Bliss, punch type.
Press, No. 3 Bliss, punch type.
Press, No. 4 Bliss, punch type, plain.
Press, No. 20 Bliss, o. b. i. type.
Press, No. 1 Toledo o. b. i., pl. m. d.
Press, No. 14 Stiles (Bliss) plain.
Press, punch type, United, 15,000 lb.
Press, D. G. 62, Ferracuta, s. s.
Presses, No. 67 Niagara, screw.
Pump, Centrifugal, 4" disch., m. d.
Punch, No. 0 H. & J., 3" thrt., cap. 1"x1/2".
Punch, 30" thrt., 1"x1" m. d., s. e.
Punch, Cleveland EF., 24" tht. m. d.
Punch, Cleveland EF., 48" tht. m. d.
Punch, Rapid, 20" tht., 1"x1/2", m. d.
Punch, coping, steel plate, 13" thrt. 36" die space, 2 holes 1"x1", m. d.
Punch & shear, 72" W. W. 2"x1 1/2", motor drive.
Punch & shear, No. 23 Marvel hand.
Punch & shear, 17-B. New Doty, 10" throat, m. d.
Punch, comb. Oeking, steel 1x1", a. j.
Riveter, Grant 101, cap. 5/16" m. d.
Riveter, 1-AA. High Speed, m. d.
Riveter, 4" Shuster rotary, belt.
Saw, Newton, 62" blade, comb.
Saw, Burke, 12" blade, capacity.
Shaper, 18" Hollingsworth, b. g.
Shaper, 24" Gould & E., b. g. crank.
Shaper, 24" S. & M. and Steptoe.
Shaper, 26" Kelly, back geared crk.
Shear, 42"x4" Niagara, 18" gap.
Shear, dbl. angle, Cleveland, 6x6x1/2", on turntable, for motor drive.
Shear, 8" Lennox rotary throatless.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, No. 2 Niagara, hand.
Shear, rotary bevel, 4", m. d.
Shear, squaring, 8"x14 ga. power.
Shear, squaring, 60"x14 ga. Canton.
Shear, squaring, 12"x14 ga., (new).
Turbo compres., Spencer 5400 c. f. m.
Turbo-generator, 500 kw. 3/60/2300.
Turret lathe, 13" Gisholt, 24" h. s.
Wheel press, 200-ton Niles, belted.

HOW—can our advertisers know that your inquiry comes from Hitchcock's Machine Tool Blue Book unless you tell them? When writing them, won't you kindly say that you saw it in Hitchcock's? Thank you.

USED AND REBUILT MACHINERY

FOR SALE BY

Strombeck-Becker Mfg. Co., - - - - - **Moline, Ill.**

HYDRAULIC PRESS

Lourie Type E hydraulic press, 75 ton, 22x22 platens. New.

FOR SALE BY

O. C. Keckley Co., - - - - - **565 Washington Blvd., Chicago, Ill.**

HYDRAULIC PRESS.

800 tons 24"x34" platens 18" daylight 6" stroke. Can be installed for either upward pressure or downward pressure operation. This is a new press and is ideal for die work or hobbing operations. Also variable pressure cast iron weighted accumulator $\frac{1}{2}$ gal. 4000 lbs.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, - - - - - **N. S. Pittsburgh, Pa.**

Air compressor, 8"x8" m. d.
Air compressor, 20"x18" m. d.
Automatic, $\frac{1}{2}$ " Gridley, cone drive.
Automatics, Nos. 52 & 53 Acme
Bolt cutters, $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1- $\frac{1}{2}$ " single head.
Boring mill, D. & H., $\frac{3}{4}$ " bar.
Boring mill, 25" Sellers, 2 heads, full motor drive.
Boring mill, 34" Colburn.
Boring mill, 36" Bullard vert., 2 hds.
Boring mill, 51" Bullard, 2 heads.
Bulldozers, No. 27 Williams-White, motor drive. A 1 condition.
Broach, No. 3 LaPointe.
Centering mche., Cadillac dbl. end.
Chain hoists, new, $\frac{1}{2}$ ton \$40.
Chain hoists, new, 1 ton \$50.
Drills, 10"-12" bench type, m. d., new.
Drills, 15, 20 21" floor type, b. d. or m. d.
Drills, 20" plain feed, (4).
Drills, 20" and 21" back geared, new.
Drills, 23", 24", 25" sliding head.
Drill, 36" T. & F. sensitive radial.
Drill, P. & W. multiple, 12-1" spdls.
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 4 Colburn mfg., 4-spdl.
Gear cutter, No. 1 Bilton.
Grinder, 8 h. p. U. S., 220-3-60.
Grinder, 7 $\frac{1}{2}$ h. p. Ransom, 220-3-60.
Grinder, Oliver drill, $\frac{1}{2}$ " cap., m. d.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 1 Univ. tool & cutter.
Grinder, No. 2 $\frac{1}{2}$ " Bath universal.
Grinder, No. 16 Besly disc.
Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (4).
Hammer, No. 1AA High Speed, m. d.
Hammers, 60 lb. Bradley helve.
Hammers, 6000 lb. N. B. P. steam, (2).
Hoists, electric, 1 & 2 ton, d. c. mtrs.
Keyseater, No. 3 Baker, cap. 3".
Lathe, 14"x6" Rockford q. c. g., d. b. g.
Lathe, 16"x6" Blount pattern makers.
Lathe, 18"x6" Springfield brass.
Lathe, 12"x10" Davis tool rm., q. c. g.
Lathe, 14"-28" Fay & Scott gap.
Lathe, 18"x10" W. B., g. h., s. p. d.
Lathe, 27"x18" Reed, bargain.
Lathe, 48"x19" 9" Betts-Bridgeford.
Lathe, 30"x16" L. & S., q. c. g.
Lathe, 36"x25" W. P. Davis m. d.
Lathe, 36"x34" W. P. Davis, m. d.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Lathes, No. 4 W. & S. tur., g. f. h. (6).
Millers, No. 9 Cincinnati plain, (2).
Millers, No. 1 Cleveland plain, (2).
Miller, No. 2A Milwaukee plain.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 4 Hendey plain, s. p. d.
Pipe mche., E., C. & B., 2 $\frac{1}{2}$ " to 8".
Pipe machine, Merrill, 2 $\frac{1}{2}$ " to 12".
Pipe machine, new 2-P. 2" Williams.
Planer, 22"x22"x50" New Haven 1hd.
Planer, 24"x24"x8" Powell, 1 head.
Planer, 30"x30"x8" Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Press, No. 3 Adriance o. b. i., 3 $\frac{1}{2}$ " str.
Press, Ferracute DD2, o. b. i., cam.
Presses, 3P Ferracute (2).
Presses, Nos. 19, 20 & 21 Bliss, new.
Presses, Nos. 3, 4, 5 and 6 Consolidated, new.
Presses, No. 20 Bliss, 3" stroke.
Punch, Wickes, 48" thrt., cap. 1 $\frac{1}{2}$ " x 1".
Radial drill, 4" Fossdick s. p. d., g. b.
Radial drill, 4" American cone drive.
Radial drill, 5" Western s. p. d., g. b.
Seamers, Bliss, Leffer & Max Ama.
Shapers, 16", 24" Gould & E., b. d.
Shapers, 24" & 36" G. & E., m. d., b. g.
Shapers, 16" American b. g.
Shear, 10"x14 ga. Bertsch, b. d.
Shear, No. 0 H. & J. guillotine, b. d.
Shear, No. 103 Bliss circle.

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

- | | |
|-----------------------------------|------------------------------------|
| No. 2 Kempsmith Maximillier univ. | 16"x6' Chard quick change, taper. |
| No. 3B Milwaukee plain, dbl. arm. | No. 2 Oesterlein plain. |
| No. 3 Hendey plain. | No. 4 Fox miller, single pulley. |
| No. 3 Rockford h. p. plain, s. p. | 48" Niles double head boring mill. |
| No. 3 Brown & Sharpe plain, s. p. | 24" Binnse horizontal boring mill. |
| No. 2 Rockford & B. & S. plain. | Large variety hand millers. |

LATHES.

- | | |
|--------------------------------------|---------------------------------------|
| 26"x13' Wickes, semi-quick chg. gr. | 18"x6' Prentice, geared head. |
| 24"x12' Bradford q. c. g. | 15"x6' Reed-Prentice taper, collets |
| 20"x10' 9" Cisco q. c. g., taper. | 16"x6' Chard quick change gear. |
| 18"x10' Sidney, q. c. g. | 14"x6' Rockford, q. c., draw, collet. |
| 18"x 8' Greaves-Klusman q. c. g. | 14"x 8' Bradford q. c. g. |
| 16"x 8' Cincinnati, q. c. g., taper. | 14"x6' Hamilton q. c. g. |
| 18"x8' Sidney quick change gear. | 14"x8'-12"x6' Hendeys, taper, collets |

GRINDERS.

- | | |
|------------------------------------|-------------------------------|
| No. 2 Norton universal (2). | 4"x12" Norton self-contained. |
| No. 13 Brown & Sharpe universal | 10"x16" Sterling universal. |
| Nos. 1 and 3 Brown & Sharpe univ. | No. 6 Heald internal. |
| 7"x18" Walker universal. | Bryant internal chucking. |
| No. 3 Wilmarth & Morinan surface. | No. 3H Van Norman external. |
| Nos. 14 and 16 Brown & Sharpe cyl. | No. 3J Van Norman internal. |

GEAR CUTTERS.

- | | |
|-------------------------------------|------------------------------------|
| 8"x22" Fellows gear threader, m. d. | 3" Cataract auto. gear and pinion. |
| No. 1 Schuchardt & S. gear hobber. | 4" Standard automatic. |
| Brown & Sharpe No. 13 gear cutter. | 4" Waltham auto. gear cutters (4). |

RADIALS AND DRILLS.

- | | |
|----------------------------------|-----------------------------------|
| 6' American triple purpose. | 2-spindle Sipp. |
| 6' American triple geared. | 4-spindle Aveys, Leland-Gifford. |
| 4' American triple geared. | Henry & Wright high speed, b. b. |
| 4' Fosdick. | 6-spindle 20" Barnes, power feed. |
| 6' Prentiss Bros. | 28" Snyder sliding head. |
| 5' Reed-Prentice. | 24" Aurora sliding head. |
| 3' Bickford, all gear, box feed. | 20" and 24" Barnes camel back. |

PRESSES AND SHEARS.

- | | |
|--------------------------------|-------------------------------------|
| 8' Toledo square shear, 3/16". | No. DG 54 Ferracute dbl. act. draw. |
| 52"x16" gap square shear. | No. 15 Toledo 20" throat. |
| 1500 lb. W. & W. drop hammers. | No. 4A American inclinable. |
| Smaller shears and brakes. | |

Large variety and sizes of rotary shears, beaders, etc.

SHAPERS AND PLANERS.

- | | |
|-----------------------------------|-----------------------------------|
| 24" Milwaukee geared, crank. | 16" Rockford geared, crank. |
| 24" Cincinnati geared crank. | 15" Hendey, tight & loose pulley. |
| 16" Steptoe crank. | 16" American crank. |
| 16" American geared, crank. | 20" Rockford back gear. |
| 16" Flather crank, single pulley. | 26"x6' Detrick & Harvey openside. |

SCREW MACHINES AND TURRET LATHES.

- | | |
|---|--|
| No. 6 Warner & Swasey heavy duty, carriage, power cross feed. | Nos. 0, 1 & 2 B. & S. semi-auto. |
| No. 6 Warner & Swasey tur. lathe. | No. 2 G. B. & S. automatic. |
| No. 4 W. & S. fox lathe, grd. frict. | 2", 1", 1" Cleavelands. |
| No. 4 Warner & Swasey b.g., fr. hd. | 4-sp. Gridleys, auto. (2) model F. |
| No. 2 Warner & Swasey screw mch. | 24" Jones & Lamson (2). |
| No. 1 Warner & Swasey screw mch. | 15" Acme b. g., friction head. |
| No. 2 Warner & S. open hex. tur. | 15" & 24" Fosters, univ. and plain. |
| 1" cap. Pratt & Whitney. | No. 1-B Foster univ., grd. hd. (3). |
| | Large variety of smaller Fosters, etc. |

MISCELLANEOUS.

- | | |
|--|--|
| Bolt cutters, 1", 1 1/2" Landis. | Tappers, 1/2" Garvin, Pratt & Whitney. |
| Bolt cutters, 1"-1 1/2" (3). | Tapper, 1" Gould & Eberhardt. |
| Keyseaters, Nos. 0 & 2 Becker. | Tapper, No. 2X Garvin auto. |
| Keyseaters, No. 2 Davis. | 1" Landis 1" Geometric gear cutter. |
| Large stock of lathes, punch presses, plain and universal grinders, 2 1/2", 4' 5', | |
| 8', 10' power squaring shears, tappers, several hundred Warner & Swasey, | |
| Potter & Johnston, etc., box, boring tools etc. | |

USED AND REBUILT MACHINERY

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Cut-off mch., No. 4 Nutter & Barnes.
Die filer, No. 3 Barry.
Drill, 16" Sipp b. b.
Drill, 4-spd. Foote-Burt 1" cap.
Drill, 4-spindle Fox, 1" cap.
Drill, 6-spindle Henry & W. h. s.
Gear shaper, 5"x36" Fellows.
Grinder, Bryant No. 6A chucking.
Grinder, 26" Buffalo knife.
Grinder, disc, 20" Ransom.
Hammer, 100 lb. Beaudry m. d.
Lathe, 9x20" Porter-Cable prod.
Lathe, 12"x5" Pratt & Whitney.

Lathe, 20" Davis chucking.
Lathe, 34"x32" Bradford d. b. g.
Miller, No. 1 Kempsmith universal.
Motor, Wagner 15 h. p. 220 a. c.
Motor, Wagner 40 h. p. 220 a. c.
Pipe machine, No. 64 Merrell.
Planer, 24"x24"x6" American.
Screw machine, No. 1 B. & S. auto.
Shaper, 17" Eberhardt crank.
Shear, No. 14 Pettingell rotary.
Turret lathe, 21"x26" Pratt & Whitney
Welder, spot, Taylor 1" cap.

FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,
1211-1223 N. 12th St., St. Louis, Mo.**

PIPE AND BOLT THREADING MACHINES.

3" Bignall & Keeler pipe machine.
6" Jarecki pipe machine.
6" Bignall & Keeler pipe machine.

8" Williams pipe machine.
14" Standard bolt threader.
3" Acme bolt threader.

SCREW AND TURRET MACHINES.

No. 6-A Potter & Johnston (2).
No. 5-A Potter & Johnston.
3" Warner & Swasey hollow hex.
No. 6 Warner & Swasey cone head.

3"x24" J. & L., geared head.
3"x26" J. & L., geared head.
31" Acme flat turret (2).

BORING MILLS.

34" Gisholt turret head, motor dr.
10" Niles vertical, 2 heads.
42" Niles, 2 heads.
54" Niles, 2 swivel heads.

40" Morton Poole, 2 swivel heads.
No. 1 P. & H. boring and drilling machine.

LATHES.

16"x10" Cisco Sidney q. c. g.
18"x 8" American q. c. g.
24"x10" LeBlond.
24"x12" Boye & Emmes q. c. g.
28"x16" Lodge & Shipley, q. c. g.

30"x13" H. S. & G.
32"x14" American q. c. g.
36"x10" Greaves-Klusman.
40"x20" Wickes q. c. g., taper att.

MILLERS.

No. 4-B Brown & Sharpe sgl. pul.
No. 5-B Brown & Sharpe sgl. pul.
No. 4 Brown & Sharpe universal, cone drive.
No. 4 Cincinnati plain.

No. 33 Kempsmith 60" feed.
No. 1 Cincinnati universal.
No. 3 Rockford hand.
Hendey Lincoln.
No. 2 LeBlond universal.

SHAPERS AND PLANERS.

12" G. & E. old style shaper.
32" Cincinnati shaper.

42"x42"x26" Wheeler planer.
36"x36"x10" Gray.

GEAR CUTTERS.

26" Brown & Sharpe.
30" Whiton spur and bevel.

36" Cincinnati spur.
42" Cincinnati spur.

DRILLS.

22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.

3" arm Drees radial.
4" arm Bickford.

PRESSES.

No. 14" Bliss toggle press.
No. 34A Bliss toggle press.
No. 25 Toledo double acting cam drawing, geared.

No. 14 Bliss toggle press.
No. 24 Toledo double acting cam drawing, fly wheel.

MISCELLANEOUS.

Furnaces, cyanide hardening.
Grinder, 14"x66" Landis.
Punch & shear, 26" throat, 1" in 1".

Swager, No. 1 Dayton.
Swager, No. 6 Aetna.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air comp., 6"x6" Curtis, 49 c. f.
Air comp., 8"x8" Bury "BB", 79 c. f.
Air comp., 8"x8" I.-R. ER-1. 138 c. f.
Air comp., 10x10 I.-R. ER-1. 179 c. f.
Air comp., 12x10 I.-R. ER-1. 378 c. f.
Bolt cutters, 1 1/2" Landis, dbl. head.
Bolt cutters, 1 1/2" Landis, 3 hd., m. d.
Boring mill, 60" Gisholt, r.p.t., m. d.
Boring mill, 84" Poole, 2 heads.
Boring mill, 96" Niles 2 heads.
Boring mill, horiz. 4-spd., Newton.
Boring mill, horiz. 3 1/2" bar, Rochester.
Boring mill, horiz. 6 1/2" bar Niles.
Brake, 6"x16 ga. Robinson.
Brake, 48"x3/16" Dreis & Krump.
Brake, 7"x3/16" Dreis & Krump.
Brake, press type. 10" 6" Ohl, 5/16".
Bulldozers, Nos. 25 and 28 W. & W.
Cranes, elec. 20-ton Morgan, 42"
Crane, elec. 5-ton Case, 56".
Dieing mches., 25 & 50 ton H. & W.
Drills, 14" to 38".
Drill, No. 3 Colburn.
Drill, radial, 2 1/2" Fosdick.
Drill, radial, 5" Prentice, b. d.
Drill, radial, 6" Prentice, s. p. d.
Drill, radial, 10" Bausch, m. d.
Flanger, McCabe, 1" capacity.
Gear cutter, 84" Cincinnati, m. d.
Gear hobber, 78" S. & S. m. d.
Gear planer, 24 & 48" Gleason, bevel.
Grinder, radial, 14", 220 v. 3-60
Grinder, 16"x72" Landis crankshaft.
Grinder, plain, 12"x72" Norton.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, tool, No. 2 Walker.
Hammer, blacksmith, power, 35-lbs.
Hammer, 65-lb. Champion, upright.
Hammer, 80-lb. Bradley, cush. helve.
Hammers, Nos. 2-B, 3-B, 4-B Nazel.
Hammers, steam, 600 lb. to 6000 lb.
Keyscater, No. 2 Mitts & Merrill.
Lathes, 12" to 60".
Lathe, 16"x6" Hendey.
Lathe, 16"x6" LeBlond, q. c. g.
Lathe, 26"x30" Bradford, h. s., b. d.
Lathe, Lo-Sw., 3 1/2"x60" Fitchburg.
Lathe, brass, 18"x6" Fox.
Lathe, roll, 50" United, m. d.
Lathe, turret, 3"x36" J. & L.
Lathe, turret, No. 3-A W. & S.
Lathe, turret, No. 6 W. & S.
Lathe, turret, 24" Steinfle, 6 1/2" hole.
Lathe, turret, No. 4 Foster.
Locomotive, gas., Adamson, std. ga.
Magnet, 36", 220 v. d. c.
Miller, plain, No. 2-Y Brown & S.
Miller, slab, Newton, C-37.
Miller, slab, 24"x24"x8", 2 heads.
Miller, univ., No. 4 B. & S. 12" d.h.
Pipe mche., 2 1/2" Jarecki, dies, b. d.
Pipe machine, 8" Williams, m. d.
Planer, 48"x42"x12" Cincinnati, 2hds.

Planer, 48"x48"x20" Gray, 3 heads.
Planer, 56"x56"x16" Cin. rev. m. d.
Planer, 96"x96"x18" Ridgway, 4 hds.
Planer, plate, 30" N.-B.-P.
Planer, rotary, 48" Niles, m. d.
Press, arbor, No. 7 Greener.
Press, hyd., 50-ton Lourie.
Press, geared, No. 34 Toledo.
Press, No. 364 Bliss, s. s., 6" stroke.
Press, No. 784 Bliss, t. r. 12" stroke.
Press, 610-F Niagara, 64"x78" d. c.
Press, 36" Toledo, dbl. crk. 2" str.
Press, 42" Toledo, dbl. crk. 2" str.
Press, No. 94-P Toledo, 42"x196".
Press, wheel, 150-ton Caldwell.
Press, wheel, 400-ton Niles.
Punch, beam, 24" Cleveland.
Punch, hor., Cleveland, 1" thru 1 1/2".
Punch & sh., 30" Rock-River 3 1/2"-4".
Punch & sh., "EF" Cleve. 24" archjaw
Punch, No. 1 L. & A. 30" thr., 1 1/2"-1".
Riveter, Hanna, 24", 70-ton.
Riveter, stake, L. & A. 5/16".
Riveting hammer, 8" high speed.
Rivet spinner, 1 1/2" Grant, 6" throat.
Rolls, angle bend., 2"x2"x1 1/2" Bertsch.
Rolls, angle bend, 3"x3"x1 1/2" Buffalo.
Rolls, bending, 42"x14 ga. Bertsch.
Rolls, bending, 54"x14" Cincinnati.
Rolls, bending, 10"x14" Cleveland.
Rolls, bending, 12"x14" H. & J.
Rolls, bending, 32"x14".
Saw, metal band, 6" Millband.
Saw, metal band, 26" Crescent.
Saw, frict. Model I-A Hunter, 24".
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, cold, 48" Newton.
Saw, hot, 54" Mesta sliding frame.
Seamer, No. 308 Toledo.
Shaper, 16", 20" & 24" Gould & E.
Shaper, 24" Potter & J. universal.
Shear, angle, Cleveland 6"x6"x1 1/2".
Shear, alligator, Canton, 1 1/2".
Shear, alligator, No. 5 Canton, 3" sq.
Shear, alligator, United 6"x6".
Shear, bevel, Lennox 1 1/2".
Shear, circle, No. 1104 Bliss.
Shear, 20"x16" ga. Bliss power.
Shear, 36"x16 ga. Niagara, b. d.
Shear, 96"x1 1/2" Stoll, m. d.
Shear, sq., 10"x8" Morgan, 24" gap.
Shear, 12"x14 ga. Peerless. 95¢ new.
Shear, plate, 10"x1 1/2" H. & J. No. 4.
Shear, plate, United, 156"x1 1/2".
Shear, rotary, No. 6 Quickwork.
Straightening rolls, Brightman 1"-4".
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, Nat. 60"x14 ga. 17 rolls.
Straightener, beam, No. 4 H. & J. m. d.
Swaging machine, No. 3 Langelier.
Swaging machine, No. 5 Langelier.
Testing, spring, Olsen, 50,000 lbs.
Upsetters, 1" to 5".
Welder, spot, Taylor, 5/32".

USED AND REBUILT MACHINERY

FOR SALE BY

Precision Castings Company

12600 Berea Road, Telephone Boulevard 2444, Cleveland, Ohio

MILLING MACHINE—VERTICAL

No. 3 Cincinnati vertical milling machine, arranged with 10 h. p., 220 volt, 3 phase, 60 cycle belted motor drive with control. Will be sold with or without electrical equipment.

FOR SALE BY

J. Bleser Mfg. Co.,

16th & Madison Sts., Springfield Illinois.

Grinder, Micro cylinder.
Grinders, Landis Nos. 1½ & 2 univ.
Lathe, Lodge & S. 36"x18", q. c.
Lathe, Prentiss 25"x16", s. c. g.
Lathe, Greaves-K., 16"x8", q. c. g.

Pipe machines, 2", 4", 6" & 8".
Miller, Transit heavy duty.
Milers, No. 3 Burke, Rockford.
Screw Machine, No. 4 Warner & S.
Shapers, Smith & Mills, 16", 12".

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
Boring mill, Barrett 5" horiz.
Boring mills, 6 Bullard 42" low price.
Demagnetizer, Walker.
Drill, Moline 4 spindle.
Drills, Baker, heavy duty (2).
Drills, Leland G-1-sp. h.s., b.b. floor.
Drills, Kokomo 1-spindle, Sipp 1
spdl., h. s., b. b., H. & W. 2-spdl.
Drills, 20", 24", 26" & 28" b. g., & tap.
Drills, Prentice 3"; Bickford 4" radials
Cincinnati-Bickford 3½" s. p. radial.
Gear hobber, Gould & E. 24".
Grinders, Landis piston motor drv.
Grinder, Heald No. 60 cylinder.
Grinders, modern internal; Blount
30", wet (3), Heald 8", mag. ck.
Grinders, St. Louis No. 9; Modern
12"x60"; Landis 12"x36".
Grinder, Reed-Prentice vert. surf.,
2 chucks, table 12"x80".
Grinder, Landis 16"x66" crankshaft.
Hack saws, 4x4, 6x6 & 2 Racine Jrs.
Atkins 4x4" Peerless 6x6".
Hammers, Bradley 40 lb. helve;
Lathes, Davis 22"x10" q. c. g.;
Monarch 11"x4" and 12"x6", q. c. g.
American 20"x10"; quick change
grd. Whitcomb - Blaisdell 22"x8"
q. c. g. Monarch 16"x8"; C. & J.
15"x8"; Lehmann 21"x15" bed
geared head all quick change grd.;
40 assorted sizes, quick and loose
change gear.
Lathes, Fitchburg 24"x18"; Greaves-
Klumman 24"x16"; LeBlond 30"x14",
all standard change.
Milling machines, Ohio No. 20 plain.
Hendey No. 2 universal;
LeBlond No. 3-H plain; Brown &
S. No. 3 plain; B. & S. No. 3 Rpl.,
s. p. d.; American No. 1½ plain;

Cincinnati No. 3 plain; Becker
No. 25 plain, Kemp No. 3 univ.
Milling and drilling mchs., Knight
No. 1½ with power feed.
Pipe machine, Curtis 3", motor ar.;
Merrill 4" belt drive, Jarecki 2";
E.C. & B 16"; Bignall & Keeler 12"
Planers, Gray 28"x28"x6", 1 head;
Cincinnati 36"x36"x18" 2 heads;
Pond, 36"x36"x12" table, 18" bed,
2 heads; Whitcomb 30"x30"x8".
Punches, W. & W. No. 17 punch.
Punch presses, 4 Consolidated No. 2;
Holden No. 58; Bliss No. 62 grd.;
Ferracute No. 1 o. b. i., (2) Federal
Nos. 1, 2, 3; Niagara No. 4½
o. b. i.; Bliss No. 19-C, o. b. i.
Pyrometer, Thwing elec., with rec.
Rolls, Badger 50" Pyramid power
rolls, 5" dia. ½" cap.
Saw, Peerless universal shaping.
Screw machine, Cleveland 2½" auto.;
P. & W. No. 2½ hand; Foster No. 3
hand; Woods No. 2 tilted turret
head; National-A. No. 82 auto.
4-spindle, m. d.; Milholland b. g.
hand; Foster No. 7 hd. b. g.
Shapers, S. M. 16"; 24" Queen City
24" back geared, American 20" b. g.;
G & E. 16", b. g.; Niles traveling
hd.; Milwaukee 16" b. g.; Walcott
20" b. g.; S. & M. 21" and 26"
b. g.; American 18" b. g.
Shears, 60" thrt. rotary slitting, (2).
Square shears, Niagara 62" power.
m. d. 18-ga.
Threading machines, Webster &
Perks 4-spindle; Geometric.
Turret lathes, Bullard 24" vertical.
Welders, butt, Federal, ½" rda.
Welder, spot, Vollans; Kay Sec.

USED AND REBUILT MACHINERY

FOR SALE BY

Indiana Machinery Company

Taylor Street & Nickel Plate Railroad,

Fort Wayne, Ind.

Lathe, Flatner, 14"x6' quick change, taper.....	\$ 300.
Lathes, 22"x12" Niles loose change, heavy, 4 of these, each.....	225.
Lathe, Niles 24"x14' loose change, heavy.....	300.
Planer, Pond 24"x24"x5' 1 head.....	250.
Planer, Pond 26"x26"x6' 2 heads.....	500.
Planer, Niles heavy, 48"x48"x14' table, 2 heads.....	750.
Radial drill, Mueller 4' single pulley, gear box drive.....	800.
Radial drill, Niles, 6' full universal, single pulley, gear box drive.....	750.

FOR SALE BY

Fitchburg Grinding Machine Corporation,

Fitchburg, Mass.

LATHES.

Putnam 14"x6'.
16"x8' LeBlond.

New Haven 32"x12'.

PLANERS.

22"x22"x6' Whitcomb.

30"x12' Niles-Bement-Pond.

TURRET LATHES AND SCREW MACHINES.

3x36" J. & L. chuck equipment,
double spindle.

24x26" Greenlee, bar & chk. eqript.
21" Gisholt.

BORING MILLS.

3"x24" Rockford horizontal.

FOR SALE BY

H. L. Morton Mchy. Co.,

1078 Carlyon Road, Cleveland, Ohio

Air hammer, Nazel No. 7, first-class operating order.....	\$1,200.
Boring mill, Bullard vertical, 2 heads.....	1,000.
Die sinker, Keller automatic, E-2, new.....	2,900.
Drill, Sigourney No. 1, 2-spindle, taper.....	75.
Drill, Champion 20" back geared, power feed.....	75.
Drill, Rockford 22" back geared, power feed, 4 feed changes.....	150.
Drill, Bausch 10-spindle, 30" round head, No. 2 taper, 8-spindle attach.....	500.
Drill, Natco 16-spindle, No. 1 taper, 12" round head, single speed equipped with 12 1/4" spindles, 22" rotating table arranged to index to 180 degrees.....	1,450.
Drill, Natco type B-16 with 24" round head, 2 speeds in head, Natco pat. independent change of spindle speed, No. 2 taper, 14-spindles attached, motor drive, 90% new.....	2,750.
Grinder, No. 14 Modern pl., 12"x48", overhead countershaft, 90% new.....	475.
Lathe, Sidney heavy duty, 19"x8', taper attachment, p. c. g.....	325.
Lathe, Boye & Emmes 18"x8' double back gears, taper attachment, c. p. d., 95% new, with chuck.....	975.
Lathe, Johnson 42x24, in good condition.....	950.
Milling machine, Cincinnati No. 4 plain, single pulley drive.....	1,500.
Vertical attachment.....	325.
Milling machine, Whitney No. 6 hand, equal to new.....	125.
Milling machine, Ingersoll, 3 heads, 24"x20"x10', late type.....	1,900.
Milling machine, B. & S. No. 12, in good working order, (2), each.....	180.
Milling machine, Hendey Lincoln type, 14"x36", good tool.....	225.
Milling machine, Becker No. 5 vertical, first-class condition.....	450.
Milling machine, Becker Model C vertical, first-class condition.....	900.
Milling machine, No. 6 vertical, first-class condition.....	1,450.
Punch press, Toledo No. 4 open back inclinable, first-class condition.....	325.
Shaper, Pratt & Whitney 15" crank, excellent buy.....	150.
Shaper, Smith & Mills, 16", good value.....	225.
Tapper, National 6-spindle, 1" capacity, semi-automatic.....	950.
Tapper, Garvin, 1/2" capacity.....	275.
Turret lathe, Warner & Swasey No. 2, hollow hexagon for chuck work.....	125.
Turret lathe, Cincinnati-Acme 3 1/2"x36", single pulley drive.....	1,100.
Turret lathe, Warner & S. No. 2, equipped for air chucks, (15) each....	275.

USED AND REBUILT MACHINERY

FOR SALE BY

Rosenfeld Machinery Co., - 942-944 W. Lake St., Chicago, Ill.

Broaching machine, No. 2 LaPointe (New London), with broaches.

Grinder, No. 10 Besly disc.

Milling machine, 1B Milwaukee, single pulley drive with vise.

Miller, Becker vertical, Model CS, rotary table.

Motors, $\frac{1}{2}$ h. p. to 100 h. p., a. c. and d. c.

Punch press, 1-4P style, solid back.

Shaper, 24" Ohio, motor drive.

Vises, 100 new Rock Island all sizes.

FOR SALE BY

R. S. Armstrong & Bro. Co., 676 Marietta St., N. W., Atlanta, Ga.

LATHES

15"x 8' Sidney q. c., d. b. g.

18"x11' Chard semi-q. c., d. b. g.

20"x 8' L. & S. q. c. g., s. b. g.

24"x20' American q. c. g., d. b. g.

24"x14' South Bend l. c., taper at.

26"x18' Walcott q. c. g., d. b. g.

GRINDERS

No. 1 Cincinnati cutter and tool.

No. 3A Landis universal.

SHAPERS

12" Springfield plain crank.

20" Steptoe plain crank.

20" Steptoe back geared.

24" Smith & Mills back geared.

DRILLS

14" U. S. sensitive.

28" Barnes sliding head.

No. 25 Foote-Burt h. d.

32" Hofer sliding head.

42" Bickford sld. hd., tapping att.

24" Fosdick radial, cone, tap. att.

MISCELLANEOUS

Bolt cutter, 14" Acme dbl. hd.

Gear cutter, No. 3 26" B. & S.

Gear cutter, 33"x9" Gould & E.

Hack saw, 6"x6" Peerless.

Hobber, 13-H Gould & Eberhardt

Hobber, 18-H Gould & Eberhardt.

Keyseater, No. 2 Mitts & Merrill.

Pipe machine, 4" Oster.

Partial list. 100 other tools in stock. Send us your inquiries.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Arbor press, No. 3½ Greenerd (2).

Arbor press, No. 3 Greenerd.

Automatic, Potter & Johnston 5-A m. d., late machine, perfect condition.

Automatic, Cleveland Model A, 3½"

Brake, 8"x16 gauge Robinson power brake.

Broach, No. 3 J. N. La Pointe double, like new.

Drill, Leland-Gifford high speed 14", sensitive.

Drill, radial, 5" Fosdick motor drive.

Drill, radial, 4" Hammond sensitive, tapping attachment s. p. d. or m. d.

Drill, Demco, ball bearing sensitive, 12000 r. p. m., bench type.

Drill, No. 2 Colburn 3-spindle, 2" capacity.

Grinder, Landis, 10"x72" self contained, motor drive, excellent condition.

Hammer, High Speed riveting No. 5-A motor drive.

Hammer, Beaudry 200 lb., used very little, belt drive.

Lathe, speed 9"x4' Greenfield, motor drive good as new.

Lathe, Willard 13"x 5' semi-quick change double back gears.

Milling machine, Brown & Sharpe No. 3 plain, power quick traverse table.

Milling machine, Milwaukee, No. 2A mfg. type, single pulley drive.

Polishing lathes, double end ball bearing, (5).

Polishing machine, Blevney vertical, belt polishing machine.

Press, Cleveland No. 52 s. s. trim. with side shear, new condition.

Press, Cleveland No. 6-I, o. b. i. brand new, weight 3300 lb.

Tapper, Garvin No. 1 automatic

Thread miller, Coulter hob thread miller, perfect condition.

Turret lathe, 25" Gisholt complete with tools.

Turret lathe, 24" Gisholt motor driven, 6½" hole thru spindle.

USED AND REBUILT MACHINERY

FOR SALE BY

United Mehry. & Supply Co.,

Holt threader, 1" Landis.
Bulldozer, Williams & White U-29.
Drill, Foote-Burt s.p.d., with taper.
Grinder, 24" Y. & F. knife.
Hammer, helve, small upright.
Hoist, 5 ton chain.
Keyseating miller, Woodruff.

1241 Walton St., St. Louis, Mo.

Lathes, P. & J. Nos. 5A & 6A.
Punch press, gang, Nos. 3, 4 L & A.
Punch and shear, 4" in 8" d. e.
Punch and shear, No. 51 Beloit.
Rolls, 8' and 6' drop end pyramid.
Sand mixer, 8' pan, 4' Mullers,
direct motor drive.

FOR SALE BY

W. P. Little Co.,

Bolt cutter, 1 1/2" Acme.
Drill, 20" Barnes, 3-spindle.
Drill, 30" Barnes, 4-spindle.
Drill, 26" Barnes, sliding head.
Drill, 4' Prentice radial.
Gear cutter, 30" Whiton.
Grinder, No. 10 Besly disc.
Grinder, No. 6 Besly disc.
Grinder, No. 200 Heald rotary.
Grinders, 60, 75 and 85 Heald inter.
Grinders, Nos. 6 & 10A Bryant int.
Hammer, 75 lb. Beaudry power.
Hammer, High Speed No. 4A.
Lathe, 18x8' Whitcomb-Blaisdell.
Lathe, 24"x10' LeBlond.
Lathe, 50"x18' Pittsburgh triple grd.

W. 9th & Front St., Cleveland, O.

Milling machine, No. 4 Becker vert.
Milling machine, 28" Cincinnati face.
Pinion cutter, Bilton automatic.
Pinion cutter, Standard automatic.
Planer, 32"x32"x14' Pond.
Punch, No. G Cleveland 24" throat.
Shear, 48" 16 gauge power.
Shear, 60" 16 gauge power.
Shear, 4" Rock River splitting.
Shear, S24 Yoder rotary.
Tapper, No. 1 Garvin automatic.
Tumbling barrel, Hoevel sand blast.
Turret, No. 6 Warner & Swasey.
Turret, No. 3 Foster.
Turret, 2"x24" Jones & Lamson.
Wiring machine, No. 1 Magee.

Partial list. 150 other tools on hand. Send us your inquiries.

FOR SALE BY

Clinton Machinery Co.,

126-128 S. Clinton Street, Chicago, Ill.

MILLING MACHINES.

No. 3 Cincinnati plain.
No. 2BS Kearney & T. s. p. d.
No. 2 Rockford s. p. d. universal.

No. 1 1/2 American plain.
No. 1 1/2 Valley City universal.
No. 0 Steptoe p. f.

LATHES.

26"x12' Advance q. c. g.
22"x10' American l. c. g., (2).
20"x12' Bradford q. c. g.
24"x8' American grd. head q. c. g.
18"x8' Morris q.c.g. taper & collets.
16"x6' American q. c. g. taper att.

16"x6' Monarch q. c. g.
15"x8' South Bend with chucks.
14"x12' Monarch g. h., motor drive.
14"x6' Carroll & Jamieson q. c. g.
14"x5' Seneca Falls with chucks, (2).
4" cap. Hardinge, Ames bench.

PUNCH PRESSES.

No. 76 Toledo b.g., fixed legs 4 1/2" str.
No. 4 American Can o. b. i.
No. 2 V. & O. o. b. i.
No. 4 Consolidated o. b. i.

No. 93 Bliss Stiles type.
No. 61 Bliss s. s. reducing 4" str.
No. 58 Bliss s. s. reducing 2 1/2" str.
No. 4 Cleveland o. b. i.

GRINDERS AND SHAPERS.

6x32" Norton cylindrical.
No. 14-30" Besly disc with press.
Dauber-Kratsch tool and cutter.

24" Gould & Eberhardt b. g.
16" Smith & Mills.
15" Potter & J. power feed to head.

DRILL PRESSES.

42" Barnes s. h., b. g., p. f. (2).
26" Barnes s. h., b. g.
26" Prentice s. h., b. g.

No. 1 Knight milling and drilling.
3 sp. Kern hi speed b. b. No. 2 taper.
24" Foot Burt h. d., tapping attach.

MISCELLANEOUS.

Hammers, 30 lb. Bradley comp. motor drive.
Hammers, 1 1/2 B, 3A, 4A 5 1/2 B high speed.

Hack saw, 6x6, 9x9 Peerless.
Screw machine, No. 2 W. & S. with power feed.
Screw machine, No. 3 Woods p. f.

USED AND REBUILT MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., . . . **3 Fox St., Bridgeport, Conn.**

Our Latest Purchases.

MILLING MACHINES.

- No. 1 Brown & Sharpe universal, full equipment plus vertical attachment, 3 years old, like new. (2).
 2M Cincinnati universal, late machine, full equipment, (2).
 No. 2 Cincinnati high power universal, s. p. d., slotted nose.
 No. 2 Cincinnati high power plain, s. p. d., slotted nose, power rapid traverse.
 No. 3 LeBlond heavy duty universal, cone drive, full equipment plus vertical heads and rack cutting attachment.

TURRET LATHES.

- No. 2-A Warner & Swasey, 114,000, chucking equipment.
 14"x18" Pratt & Whitney, power feed to turret and cross slide, new.
 24"x26" Pratt & Whitney, power feed to turret and cross slide, new.
 18" Libby, 4 years old, regular equipment, excellent.
 No. 6 Brown & Sharpe hand screw, power feeds.

MISCELLANEOUS.

- Boring mill, No. 1 Cleveland horizontal, single pulley drive, 24" bar.
 Drills, Henry & Wright s. s. high speed, class "B" and "K", (2).
 Grinder, 14" Pratt & Whitney surface, ball bearing, magnetic chuck.
 Lathe, 18"x10" Hendey yoke head.
 Lathes, 14"x6" Hendey yoke head, taper attachment, (2).
 Turret lathe, 24" Bullard vertical, rapid production, New Era type turret.
 Immediate shipment with one or two exceptions, from Bridgeport stock. Quotations immediately on request.

FOR SALE BY

Strafer Machinery Company,

14th and Provost St.,

Jersey City, N. J.

BORING MILLS VERTICAL

- | | |
|----------------------------------|--------------------------------------|
| 14' Niles, heavy belt drive. | 60" Niles-Bement-Pond d. c., m. d. |
| 96" Betts, arranged motor drive. | 54" Gisholt rapid traverse, s. p. d. |
| 84" Betts, arranged motor drive. | 37" Niles-Bement-Pond belt drive. |
| 51" Niles-Bement-Pond speed box. | 24" Bullard v. t. l. |

DRILLS, RADIAL.

- 8' Prentice speed box drive. 6" American full universal.

GEAR HOBBSERS.

- 5-A Lees-Bradner a. c., m. d. 72"x24" Westinghouse motor drive.

LATHES.

- | | |
|---------------------------------|--------------------------------------|
| 90"x27" Putnam belt drive. | 42"x14" Bridgeford geared head. |
| 60"x26" Bement Miles t. g. | 36"x14" Bridgeford geared head. |
| 26"-48"x22" McCabe belt drive. | 22"x10" Drapier cone belt drive. |
| 48"x30" Bridgeford geared head. | 20"x 8" Whitcomb-Blaisdell grd. hd. |
| 36"x30" Putnam geared head. | 18"x 8" Fairbanks double belt drive. |

GRINDERS.

- New Reinesler planer type vertical surface 36"x80" mag. chuck 24"x58".
 No. 2 Brown & Sharpe universal. No. 7 Gardner ball bearing 30" disc.

MILLING MACHINES.

- 30"x24"x20" Ingersoll. 38"x48"x10" Ingersoll 3 heads.
 Pratt & Whitney 24"x24"x9" 3 heads. No. 2A Becker vertical rotary table.

PRESSES.

- 300 ton W. S. 73"x20" hydraulic. 250 ton Cardwell wheel press.

SHAPERS.

- 25" Smith & Mills belt drive. 24" American belt drive.

PUNCHES AND SHEARS.

- No. 4 Hillis & Jones double end. Cleveland 24" t., cap. 1"x1".

MISCELLANEOUS.

- | | |
|-----------------------------------|--------------------------------------|
| Reading machine, Bliss. | Chuck jaws set for boring mill. |
| Bending rolls, 10"x8". | Generator, 100 k. w., a. c., Diesel. |
| Borer, American woodworking. | Hoist, Liggerwood drum, motor dr. |
| Boring bars, portable, 4"x8". | Lathes, Oliver pattern, slide gap. |
| Compressor, Ingersoll-Rand 8"x6". | Rotator, 10 ton, d. c. motor. |
| Chuck, magnetic, 24"x58". | Wire straightener, core, to 5/16". |

USED AND REBUILT MACHINERY

FOR SALE BY

American Spiral Spring & Mfg. Company
56th St. and A. V. R. R., Pittsburgh, Pa.

CENTRIFUGAL COMPRESSOR.

One No. 140 General Electric centrifugal compressor, complete with 10 h. p. motor, 220 volt, a. c., 3 phase, 60 cycle, shown in General Electric Bulletin 48609 and Instruction Book 88602-A.

FOR SALE BY

Brown Machinery Co.,	2323 N. 9th St., St. Louis, Mo.
Blowers, Nos. 3, 7 and 9 Sturtevant.	Lathes, No. 5A Potter & Johnston.
Broach, No. 1 La Pointe.	Lathes, 16" Monarch; 18" Lodge & Shipley; 26" Putnam; 30" Blaisdell.
Drills, Barnes 20" with tappg. attmt.	Millers, No. 4 Hendey; No. 2 Hendey Norton, universal; No. 7H Becker; Pratt & Whitney 2" spline.
21" C-O & Champion; 22" Barnes;	Planer, 42"x42"x10' Pond.
25" American; 24" & 32" Mechanics.	Press, arbor, No. 3 A Geier; 3 1/2 Greenerd.
Drill, multiple, No. 66-D Moline "Hole Hog".	Presses, o. b. i., Niagara 4 1/2.
Drills, radial, 4' Bickford; 3' Prentice.	Presses, hydraulic, 36x72" Elmes.
Gear hobber, G. & E. No. 1716.	Press, hydraulic, Lourie 200 ton.
Grinder, edge, No. 302 Safety Emery Wheel Co.	Profilers, Putnam; Reed-Prentice.
Grinders, emery, St. Louis & W.; large stock new at 50% disc.	Punch & shear, No. 10 1/2 Badger; No. 52 Beloit.
Grinders, disc, No. 6 Besly; No. 202 Badger.	Riveters, No. 2 Grant; No. 4-V-3 Grant, mr. dr.
Grinders, drill, W. & M; G. R. B3T.	Shaper, 14" Barker; 12" Whipp; 20" Smith & Mills.
Grinders, plain, 10x36" Norton; 8x36" B. & S.; 12x36" Modern.	Shears, rotary splitting, No. 134 Marshalltown 4' thrt.; 4" cap.
Grinder, universal, No. 12 B. & S.	Welders, spot, Agnew 8" capacity.
Hammer, helve, 40 lb. Bradley; No. 2 Pettingell.	
Lathes, turret, 16" Gisholt, Omar, Foster, J. & L.	

And many others. Write for list 130.

A CHAIN

The advertisers in the Blue Book pay Hitchcocks. They send you the Blue Book free. You buy the articles advertised. So far, so good.

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USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

1½ Cincinnati universal.

MILLERS.

No. 2 Brown & Sharpe plain.

MISCELLANEOUS.

Brake, 6', 10 ga., box and pan.

Riveters, Nos. 2-A and 3-A High Speed.

Drill, 18-spindle No. 4 Bausch.

Upsetter, 24" Acme (steel).

Drill, Baker.

Welder, butt, 2" round.

Pipe machine 2" Jarecki.

Shear, 12'x14 ga. Loy & Nawrath.

FOR SALE BY

A. M. Stoehr Machinery Co.

106 S. Jefferson St., Chicago, Ill.

Bender, Wells pipe 2" capacity.

Planers, Pond 68x60x12', 48x48x32', 42x42x24', 36x36x12'.

Bender, Excelsior angle 2x2x½"

Rolls 7' ½", 14' 7/16", drop ends.

Bolt cutters, Landis, Acme, Nat. 1"

Sq. shears 10' 10 ga. 10' 14 ga. 10 &

Brakes, 12' ½", 8' and 10' 10 ga.

12' 18 ga. 8' 10 ga., 20" gap.

10' ½" apron motor drive.

Wire straighteners up to ½" cap.

Millers, No. 2 Rockford No. 3

Welders, both butt and spot.

Cincinnati.

Punch and shears, ½", ¾", 1" & 1½".

FOR SALE BY

Randle Machinery Co.

1733 Power St., Cincinnati, Ohio

Air comp., 6x6 Worthington f. v.

Keyseater, Nos. 1 & 2 Davis.

Air compressor, 13x12x14 Worthing-

Keyseater, No. 2 M. & M.

ton f. v. steam driven.

Lathe, 14"x6" VonWyck l. c.

Air compressor, 7x6, 9x8, 10x10 I-R.

Lathe, 16"x6" L. & S. q. c.

type E-R-1.

Lathe, 20"x10" Rahn-Larmon, q. c.

Bending rolls, No. 8½ Bertsch, m. d.,

Lathe, 24"x14" Schumacher-Boyer l. c.

½" cap.

Lathe, 22"x18" American grd. head.

Bending rolls, No. 9 Bertsch, m. d.,

Lathe, 37"x28" Putnam t. g., m. d.

½" cap.

Lathe, 36"x26" Wickes.

Bending rolls, 19'x11" Cleve., m. d.

Miller, No. 3 LeBlond plain.

Bending rolls, 8'x11" H. & J. belt dr.

Miller, Nos. 2 & 3 B. & S.

Bending rolls, 12'x11" vertical, m. d.

Miller, No. 1-B B. & S.

Bending rolls, 20'x11" Niles, m. d.

Planer, 24"x24"x8" American, 2 hds.

Bending rolls, Nos. 5½ Bertschangle.

Planer, 36"x36"x10" Gray, 1 head.

Bolt cutter, 1½" Acme, Model A.

Planer, 36"x36"x10" Powell, 2 heads.

Bolt cutter, 3" Acme, Model A.

Planer, 68"x60"x12" Pond, 3 heads.

Bolt cutter, 4" Acme, m. d.

Planer, 36"x36"x20" Pond, 4 heads.

Boring mill, 36, 42, 60 & 72" Bullard.

Planer, 72"x72"x20" Ridgway, 4 hds.

Boring mill, 51" & 66" Niles.

Pipemche., 6" Eaton-Cole-Burnham.

Boring mill, 72" Wais & King.

Pipe machine, 1½" Bignall & Keeler.

Brake, 4'x14 ga. Robinson, openend.

Pipe machine, 12" Saunders.

Brake, 12'x11" Ohi press.

Pipe machine, 2" Williams.

Brake, 10'x10 ga. Ohi press.

Shaper, 14" and 18" Steptoe.

Brake, Nos. 204 & 227 D. & K.

Shaper, 16" Cincinnati.

Drill, 3' Cincinnati Bickford.

Shaper, 24" Cincinnati Queen City.

Drill, 3' Carlton.

Shear, 8'x16 ga. Bertsch.

Drill, 5' Cincinnati-Bickford.

Shear, No. 196 Niagara.

Drill, 6" American t. g., m. d.

Shear, 52"x14 ga. Pexto.

Gear hobber, Nos. 1 & 3 Farwell.

Shear, No. 005 Niagara circle.

Gear hobber, Nos. ½ & 2 S. & S.

Shear, No. 217-D Niagara.

Hack saw, No. 2 Sterling.

Shear, 48"x11" Bertsch.

Hack saw, 6x6 Racine or Peerless.

Shear, No. 4 L. & A. universal.

Hack saw, 6x6 Peerless universal.

Turret lathe, Nos. 2 & 4 W. & S.

Grinder, 10x30 Queen City.

Wheel press, 200 Niles.

Grinder, No. 19 83" Besly.

Wheel press, 200 McCall.

Also many other tools of various sizes and types. Send us your inquiry.

USED AND REBUILT MACHINERY

FOR SALE BY

John A. Stockman, - - 240 West 25th St., New York, N. Y.

Automatic, 1½" Gridley multiple spindle, Model "G", m. d., lot of equipment.
Grinder, No. 16 Blanchard floor, motor drive.
Hoist, ½ ton Sprague, 110 volts.
Lathe, 3x36 Jones & Lamson, lot of collets.
Lathes, 17" LeBlond manufacturing, q. c. g., pan beds, (4).
Motor, 7½ h. p., 470 r. p. m., SK 180 Westinghouse.
Motor, 7½ h. p., 1200 r. p. m., type KT General Electric, auto. comp.

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Die sinker, No. 2 Pratt & Whitney.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear miller, automatic, 4" cap.
Grinders, Greenfield cutter & tool.
Grinder, No. 2 Garvin hole.
Grinders, disc, motor drive, bench.
Lathe, Stark No. 3 precision with compound and 25 collets, \$125.
Lathe, 13x6 South Bend.
Lathe, 9x14 Porter-Cable.
Milling machine, No. 2 LeBlond.
Milling machine, No. 2 Brainerd.
Milling machine, Knight No. 1½.
Milling machine, No. 4 Cincinnati plain, all geared, single pulley dr.

Motors, 50 & 75 h. p. 3 phase.
Punch press, No. 2 Toledo o. b. i.
Punch and shear, No. 18 Williams & White.
Rivet spinner, Grant No. 80.
Screw machine, Gridley 1½", 4-sp.
Screw machine, No. 0 Brown & Sharpe automatic.
Screw machine, Wood tilted turret 1" bar feed with collets \$250.
Screw machine, No. 56 National Acme 4-spindle automatic.
Shaper, 16" Steptoe.
Shaper, 14" Hendey.
Tapping machine, No. 6 St. Louis.
Tapping machine, Rickert-Shafer.
Tapping mche., No. 1 Garvin auto.
Welder, spot; National 25 k. w.

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia, Pa.

Crane, 96' span box a. c. traveling crane, 3 motors.
Drill, 4" Harrington radial, belt.
Drill, 32" Aurora, motor driven.
Drill, 20-spindle Natco, No. 2 taper.
Gear cutter, 36" Becker-B. auto.
Gear cutter, No. 24 Whiton, belt dr.
Grinder, 12"x36" Cincinnati univ.
Hammer, 2000 lbs. Chambersburg, double frame, steam forging.
Hammer, 1100 lb. N. B. P., sgl. fr.
Hammer, 100 lb. Little Giant, belt.
Lathe, 16"x 8' Bradford.
Lathe, 16"x10' Bradford.
Lathe, 26"-48"x14" McCabe-2-in-1, belt.
Lathe, 30"x30" Harrington.
Lathe, 26"x30" Pond, with motor.
Miller, Newton duplex, planer type, table 21"x12".
Miller, No. 4 Brown & Sharpe plain.
Miller, No. 4 LeBlond h. d., plain.
Milling machine, No. 2 Garvin universal, vertical attachment.
Milling mche., No. 3 Garvin duplex.
Pipe machine, 2" Landis, belt.
Pipe machines, Oster portable, gas drive, all sizes.

Planer, 36"x36"x24", Bement, 4 hds.
Pipe machines, 2", 4", 6", 8", & 12".
Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x12" Cincinnati, 2 hds.
Press, No. 73½ Bliss trimming press.
Press, No. 37 Niagara, 1100 lb. fly-wheel, solid back.
Press, No. 123 Ferracute, geared, double acting, flywheel 475 lb.
Punch, No. 1½ H. & J. 20" thrt., 4x4
Punch, No. 1 Royersford double end, 4"x4".
Rolls, 14" bending, belt, drop end, rolls 9" and 8".
Rolls, 6 Beloit, drop end, rolls 4" & 4½", belt drive.
Saw, 30" Espen-Lucas, cap. 8".
Shaper, 16" Whipp, b. g., cone dr.
Shaper, 18" Cincinnati, one traveling head, 2 tables.
Shaper, 28" Queen City, back grd.
Shear, angle, Type C Long & A. double, capacity 8x8x1 angles.
Shear, Niles, plate splitting, 1" capacity, motor driven.
Slotter, 10"-12" Dill, belt drive.



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*There are three essentials
to good advertising—*

1. The article advertised must have real merit.
2. The copy describing it should be clear and concise.
3. The advertising message should be delivered to the maximum number of possible buyers.

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506 SOUTH DEARBORN STREET, CHICAGO, ILL.

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Drill, 1S Garvin duplex.
Grinders, No. 10 Brown & Sharpe.
Grinder, 10"x52" Landis, s. p. d.
Hobbers, Nos. 3, 12-B & C.
Lathe, No. 9 LeBlond multi-cut.

Miller, No. 13-B B. & S., production.
Miller, No. 1 Brown & Sharpe.
Miller, 30"x10' Ingersoll, 4 heads.
Planer, 60"x60"x16' Pond.
Radials, 3' Morris, Cincinnati Bick.

Partial list; send us your inquiries.

FOR SALE BY

Badger-Packard Mchy. Co., 133-9 W. Water St., Milwaukee, Wis.

Miller, No. 3 Kempsmith hand, overhauled.....	\$ 95.
Planer, 36x36x12' Niles, 3 heads.....	900.
Punch press, No. 2 Rockford, 2 1/2" stroke.....	175.
Punch press, No. 19 Bliss, 2 1/2" stroke.....	165.
Punch press, No. 69 Bliss, cam actuated.....	185.
Saw, 8x8 Atkins No. 7K, new.....	145.
Saw, 7x8 Atkins No. 18-S, swivel vise, new.....	250.
Saw, 12x12 Lucas cold.....	90.
Saw, No. 20-C Racine shear cut, motor driven with gear box, new.....	545.
Turret lathe, Bardons & Oliver friction geared head, new, special price.....	275.
Turret lathe, 16" Bardons & Oliver plain head, wire feed, etc.....	275.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS.

36" Bullard New Era vertical. 42" Bullard vertical.

DRILLS.

5' Prentice radial. 4-spindle Dwight-slate sensitive.
3' Prentice radial. No. 2 Langelier h. s., b. b. bench.

7-spindle Dwight-slate sensitive.

GRINDERS.

No. 1 Brown & Sharpe surface. 20" Blount wet tool.
No. 2 B. & S. universal. No. 1 Walker tool grinder.
No. 3 B. & S. cutter grinder

LATHES.

30"x20' Fitchburg. 14"x 6' Rockford Economy.
21"x16' Porter, q. c. g. 12"x 6' Hendey tie-bar in pan.
16"x 6' Cisco, q. c. g.

MILLING MACHINES

No. 13-B Brown & Sharpe mfg. No. 13 1/2 Garvin.
No. 4 Van Norman duplex. No. 4 Thurston die.
No. 25 Bilton.

PLANERS.

36x36"x10' Whitcomb, 2 heads. 17"x17"x4' Whitcomb.

17"x17"x 6' Whitcomb.

SCREW MACHINES & TURRET LATHES.

No. 8 Warner & Swasey turret screw machine g. f. h. 3 1/2". No. 0 B. & S. hand screw.
16" Warner & S. turret lathe g. f. h. 20"x8' Reed with hexagon turret.

SHAPERS.

20" Kelley b. g. No. 1 Rhodes.
24" Hendey friction.

PRESSES.

No. 3-A Standard, inclinable, roll feed. No. 0 Manville s. a.
 No. 7 Rueach foot press.

MISCELLANEOUS.

Band saw, Houghton & Richards metal cutting 12". Gear cutter, No. 13 Brown & Sharpe.
Hammer, 80 lbs. Bradley cushioned helve. Rolling mill, 8x8 McWilliams.
 Rolling mill, 6x10 McWilliams.

K & T Rebuilds *Are Rebuilt!*

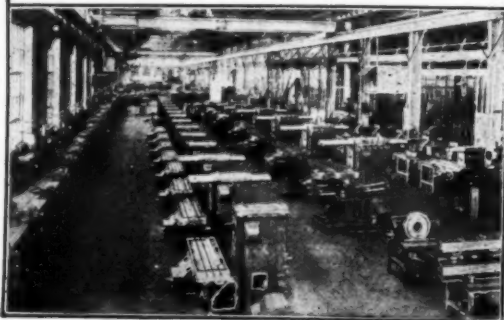
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5926 NATIONAL AVENUE MILWAUKEE, WISCONSIN



To Machinery DEALERS and Users

We have a desirable lot of NEW and USED tools, some thoroughly rebuilt and in fine condition, others "As is" but in running order, all of which we wish to move quickly at interesting prices. Write or see us regarding this stock, which is on display in our Cincinnati warehouse. This lot is as follows:

NEW TOOLS

No. 2 Edlund Double Column Upright Drill.

No. 2 Wood Tilted Turret Lathes, friction geared head, (2).

USED TOOLS

LATHES

18"x8" "American," Single Back Gear.

24"x10" "American," Heavy Pattern, Double Back Gear.

16"x8" Hamilton, Single Back Gear.

18" Gisholt Turret, Cone Drive, (2).

2 1/4"x24" Jones & Lamson Flat Turret, Geared Head

PLANERS

*42"x36"x26" "American" 4 Heads.

*48"x48"x26" "American," 4 Heads.

72"x60"x31" Pond, 4 Heads.

DRILLS—MULTIPLE SPINDLE

No. 2 Bausch High Speed, with eight 2" spindles.

DRILLS—RADIAL

*3" "American" Sensitive.

*4" 4" "American" Sensitive.

4" Bickford, Cone Drive.

*5" Nil-s-Bement-Pond, round column, semi-universal, S. P. D.

5 1/2" Pond, Cone Drive.

6" Prentice, Cone Drive.

*7" Bickford, Triple Geared, Single Pulley Drive.

SCREW MACHINES

2 1/4" Gridley Single Spindle Automatic, motor driven.

No. 54 National Automatic.

MILLING MACHINE

No. 40 Becker-Brainerd Duplex.

GRINDERS

No. 10 Bryant Semi-Automatic Hole Grinder.

No. 22 Brown & Sharpe Internal Grinder.

GEAR CUTTERS

No. 3 Brown & Sharpe Automatic (for gears up to 26"x8") (3).

SLOTTER

48" Bement Heavy, motor driven (almost new).

VERTICAL BORING MILL

*36" Gisholt, motor driven.

MISCELLANEOUS

No. 3-B, J. N. LaPointe Broaching Machine.

(*) Can be motor driven.

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

Builders of Highly Productive Lathes, Radials, Shapers

Excellent Values In Machine Tools at

Partial list herewith—

CENTERING MACHINES

Centering machines, single spindle Cadillac.

ENGINE LATHES

12"x 5' Hendey, c. r. and t. a. with draw-in attachment.
12"x6' Seneca Falls tool room.
14"x 6' Porter, compound rest and taper attachment, l. c. g.
14"x 6' Monarch, 3 step cone, d. b. g., c. r. and t. a. with draw-in attach.
16"x8' Rockford, 3 step cone, d. b. g., c. r. and t. a., semi quick change.
16"x 8' Monarch, compound rest, standard pattern.

18"x8' Boye & Emmes q. c. g., s. b. g.
16"x 8' Bradford, c. r., l. c. g.
18"x8' Cincinnati, q. c. g., taper, draw in.
16"x 8' Walcott, c. r., q. c. g.
18"x10' Walcott, 3 step cone, d. b. g., semi quick change.
20"x10' Walcott, 3 step, q. c. g.
24"x20' Lodge & Shipley, q. c. g.
32"x28' Bullard Standard Lathe arranged for variable speed mtr. dr.

TURRET LATHES AND SCREW MACHINES

1" Foster, plain head, a. c. and b. f.
No. 3 Foster g. f. h. turret screw mch., with p. f. carriage and turret.
No. 3, 1 1/2" Woods tilted turret.
No. 55 Nat'l Acme 4-spd. auto.
12" W. & S., friction head.
No. 2 Warner & Swasey, p. h., a. c. and b. f.

No. 4 Warner & Swasey, g. f. h., a. c. b. f., power feed turret.
No. 4 Warner & Swasey Friction Hd. Universal Tur. Screw Mche.
No. 4 Warner & Swasey Friction Head, auto. chuck, hand feed.
No. 6 Warner & Swasey friction head, auto chuck, h. f. t., (2).
No. 8 Warner & Swasey Friction Hd.

DRILLING MACHINES

20" Barnes Plain Lever Feed.
20" Hamilton Sta. Hd., b. g. and p. f.
20" Barnes "Camel Back".
22" Sibley Sliding Head, b. g. and p. f. with t. a.
26" Barnes Sliding Hd., b. g. & p. f.
28" Barnes Sliding Head, b. g. and p. f. with t. a.
3' Western Gear Box, single pulley drive with t. a.
4' Mueller, gear box, sgl. pulley dr.
8" American Plain with gear box belt drive.
No. 310 Baker Heavy Duty.
No. 40 Natco Straight Line Multiple Spindle Drill, 8-spindle head with two speeds in head.

No. 2 Bausch Multiple Spindle with 8-14" spindles.
Gordon single-spindle, h. s., b. b.
2-spindle Allen, h. s., b. b.
4-spindle Allen, h. s., b. b.
6-spindle Allen, h. s., b. b.
12-spindle Moline, cam feed, two table.
No. 30 Natco, belt driven.
No. 44 Colburn, sgl. sp. heavy duty, 2 1/2" cap., with solid sp. and flange for receiving multiple drill heads, new, (2).
No. 34 Demco high speed bench drill with C spindle, new.
Foote Burt 1-spindle heavy duty, (2).
3' Corley Plain Arm Radial.

The Strong, Carlisle & Hammond Co.,

Used and Rebuilt Reasonable Prices

Let us have your inquiries.

MILLING MACHINES

No. 6 Whitney hand, (2).
No. 1 Toledo hand millers, (2).
No. 0 Bickett, hand, bench type, (2).
No. 2 Garvin Duplex Slotter or Miller.
No. 1½ Milwaukee univ. mtr. driven, dividing head, vertical and slotting attachments.
No. 6 Becker vertical.

No. 3 Cincinnati Vertical, Constant Speed Drive.
Becker 2-spindle, with rotary table.
Briggs Type "A" motor driven with motor.
No. 1½ Cincinnati cone drive, plain.
No. 1½ Milwaukee plain.
No. 3 Brown & Sharpe Plain, cone drive, with taper nose spindle, (2).

SHAPERS AND PLANERS

20" American cone drive, b. g.
20" Queen City cone pulley dr., b. g.
20" Steptoe cone pulley drive, b. g.
20" Hendey friction, (2).
16" Smith & Mills b. g., crank.
16" Smith & Mills plain, crank.
16" Gould & Eberhardt, back geared, crank.

18" Gould & E., b. g., crank, (2).
22"x22"x 5' Putnam planers, (2).
38"x38"x10' Pond, 2 heads on rail.
26"x30"x6' Cleveland open side one rail head, one side head, new.
48"x60"x16' Cleveland open side, two heads.

GRINDERS

30"x94" Diamond Face Grinder, belt driven.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new.
No. 6-A Bryant internal.
Webster & Perks, h. s., b. b., double spindle polishing lathes, cabinet base (6).

No. 3 Brown & Sharpe planer type
No. 11 Brown & Sharpe pl. grinders.
No. 14-48" B. & S. plain, (2).
No. 3 Modern universal.
Gisholt universal form tool grinder.
Type "DE" Hisey-Wolt internal.
C3A Grand Rapids duplex drill grinders with wet att., new.
Landis Internal, with countershaft.

MISCELLANEOUS

Arbor press, No. 3 Geier.
Boring and Turning Mill, 52" Bullard
Vertical 2 swivel heads, motor dr.
Cold saw, No. 6 Cochrane-Bly, m.d.
Hand brake, 5' Dreis & Krump.
Pipe machine, No. 300 Oster, ½" to 2".
Pipe machine, 8" Jarecki, No. 88.

Power Press, Max Arms S. S. Plain, 5" stroke, on inclined legs.
Slotter, No. 2 Garvin Duplex.
No. 3 Rockford plain.
Tappers, No. 2-X Garvin, (2).
Tappers, ½" Rickert-S. vertical, (2).

Cleveland, Ohio; Detroit, Michigan

REAL VALUES

RADIALS AND UPRIGHT DRILLS

7¹ Fordick Plain, cone pulley.
6¹ & 5¹ Cinti-Bickford Pl., g. b. d., late.
6¹, 5, 4¹ & 3¹ American Triple Geared,
Plain, g. b. d.
6¹ N.-B.-Pond Semi-Universal, g. b. d.
4¹ & 2½¹ Morris Plain, gear box drive.
4¹ Dresser Hi-Duty Plain, gear box drive.
2¹ American Tr. Geared Plain, cone pulley
4¹ Hammond b. b. Sensitive.
3¹ American b. b. Sensitive.
36⁸ & 32⁸ Aurora Upright, tapping att.
36⁸ Cinti-Bickford Up., g. b. d., late type.
28⁸ Cinti-Bickford Upright, late type.
28⁸ Prentice Bros. Upright.
25⁸ & 21⁸ Superior Upright.
25⁸ Weigle Upright, latest type.

24⁸ Cinti-Bickford Upright, tap. att.
24⁸ Aurora Upright, latest types.
21⁸ Weigle Upright, tap. att.
Nos. 310 & 314 Baker Bros. Hvy. Duty.
No. 17 Foote-Burte 3-spdl. Hvy. Duty.
No. 220 Baker Bros. 2-spindle, H. D.
index table.
6-sp. Nat'l-Acme Horiz. Auto. Driller.
21⁸ Hoefler 6-spindle Gang.
22⁸ W. F. & J. Barnes 4-spindle Gang.
No. 2 Avey 4-sp., b. b., power feed.
No. 2 Avey 2-spindle, ball bearing.
1, 2, 3, & 4-sp. Allen b. b. No. 2 M. T.
3 & 4-sp. Henry & W. b. b., (Class B).
No. 30 Natco Multiple, equipped 40-sp.
No. 3 Bausch Mult., equip. 19-spindles.

ENGINE AND TURRET LATHES

36"x40¹ Johnson Tr. Grd., at. change.
36"x38¹ Bridgeford grd. hd., q. c., t. a.
30"x26¹ N.-B.-P. Standard Change.
36"x20¹ Bridgeford Grd. Hd., q. c.
36"x16¹ American Hi-Duty, G. H., q. c.
36"x16¹ Lodge & S. Sel. Grd. Hd., q. c.
24"x14¹ & 24"x12¹ Cisco G. H., q. c., new
26"x12¹ Pittsburgh quick change.
24"x12¹ American Tool Wks. q. c.
24"x12¹ Amer. H. D. G. H., q. c., late.
24"x10¹ Greaves & Klueman q. c.
20"x10¹ LeBlond quick change.
20"x12¹, 20"x10¹ & 20"x8¹ Cisco Grd.
Head, quick change, brand new.
20"x8¹ Hendey Grd. Hd., q. c., t. a.
18"x10¹ Boye & Emmes quick change.

18"x8¹ L. & S. Sel. Grd. Hd., q. c.
16"x10¹ Lodge & Shipley q. c., late.
16"x8¹, 16"x6¹ & 14"x6¹ L. & S. q. c. late
16"x6¹ Lodge & S. Sel. Grd. Hd., q. c.
16"x6¹ Rahn-Larmon quick change.
14"x6¹ American Hi-Duty, q. c., late.
14"x6¹ LeBlond Geared Head, q. c.
Nos. 3-A & 2-A W. & S. Universal
Hollow Hex. Turret.
24⁸ & 21⁸ Gisholt Turret, t. a., late.
3"x36⁸ Jones & L. Turret, chk. equip.
3"x36⁸ J. & L. dbl. sp. Tur., chk. equip.
3¼"x36⁸ Acme Grd. Hd. Turret, chuck.
2¼"x26⁸ Acme Flat Turret, chuck equip.
Nos. 2 & 4 Milholland Turret.
Nos. 4 & 4½ Bardons & Oliver Turret.

GEAR MACHINERY AND GRINDERS

No. 34 B. & S. Gear Hobbers, late type.
Nos. 12 & 3 Barber-C. Gear Hobbers.
No. 18-H G. & E., Hi-Duty Gr. Hob.
No. 5-A Lees-Bradner Gear Hobbers.
Nos. 6 & 61 Fellows Gear Shapers.
No. 5-48⁸, No. 4-48⁸ & No. 3-26⁸ Brown
& Sharpe Auto. Spur Gear Cutters.
6⁸, 11⁸ & 18⁸ Gleason Bevel Gr. Generat.
No. 16-26⁸ Blanchard Vert. Surf., b. d.
14⁸ P. & W. Vert. Surf., b. b. ap., mag. chk.
12⁸ P. & W. Vert. Surf., rot. mag. chk.
No. 2 Wilmarth & M. Auto. Surface.
No. 3 B. & S. Planer type Surface.
No. 22, 12⁸ Heald Rotary Surface.
Walker single stroke Vertical Surface,

No. 70 Heald Int., clutch in head.
Nos. 70 & 75 Heald Internal.
Capitol Internal Grinder.
No. 120 Gardner Double Disc.
No. 4, 23⁸ & No. 8, 40⁸ Gard. Disc.
No. 60 Heald Cylinder.
6"x32⁸, 10"x36⁸, 10"x50⁸ & 10"x72⁸
Norton Plain.
6"x18⁸, 10"x36⁸ & 10"x52⁸ Landis Pl.
No. 11 B. & S. Plain, self-cont., late.
No. 2-12"x36⁸ Cincinnati Plain, late.
8"x30⁸ Modern Plain, self-contained.
No. 1½ Cincinnati Univ. Tool & Cutter
No. 1 LeBlond Universal Tool & Cutter.
No. 2½ Bath Universal, complete equip.

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MILLING MACHINES

Nos. 4 Hendey Univ., single pulley, comp.
Nos. 3 & 2 B. & S. Univ., c. p., compl.
No. 1-B LeBlond Univ., c. p. complete.
No. 5 Cincinnati H. P. Plain, arr. for m. d., rect. over-arm.
No. 4 Cincinnati H. P. Plain, arr. for motor drive, power rapid traverse, late.
No. 2 Cinti. H. P. Plain, s. p., late.
No. 3 Ohio Hvy. Plain, c. p., p. r. t.
No. 3 B. & S. Plain, cone p., p. r. t.
Nos. 3, 2 & 1½ Cincinnati Plain, c. p.
Nos. 3 & 1 Kempsmith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.
Nos. 2-H & 1½ Brown & S. Pl., c. p.
Nos. 2½ & 2 LeBlond Pl., cone pulley.

Nos. 2-B & 1½-B Special Milwaukee Plain, s. p. d., double over-arm.
No. 2 Knight Milling and Drilling.
No. 3 Toledo Vertical, s. p. d.
Models "B" & "C" Becker Vert. Cont.
48" & 24" Cincinnati Auto. Duplex.
28" Cincinnati Semi-Auto. Face Miller.
No. 33 Kempsmith Manufacturing.
24" Cincinnati Automatic.
18" Cincinnati Plain Manufacturing.
14" Cincinnati Semi-Automatic.
Gooley & Edlund (Briggs type) Mfg.
No. 3½ Fox Hand and Power.
No. 2 Pratt & Whitney Hand & Power.
No. 6 Whitney Hand.

SHAPERS AND PLANERS

26", 24" & 20" Kelly H. D., b. g. Cr.
25" & 20" S. & M. H. D. B. G. Crank.
24" Gould & Eberhardt H. D. B. G. Crank, m. d. thru gear box, late type.
24" Cinti. H. D., B. G. Crank, m. d. g. b.
24" & 20" Walcott H. D., B. G. Crank.
24" Stockbridge H. D., B. G., Crank.
20" Milwaukee H. D., B. G., Crank.
20" Amer. H. D., B. G. Crank, S. P.
24" & 16" Barker h. d., b. g., Crank.

16" Columbia H. D., B. G. Cr. arr. m. d.
16" Amer. H. D. Univ. B. C. Crank, s. p. d., pwr. down feed, rev. table, tilting table top.
16" Hollingsworth H. D., B. G., Crank.
24" Cincinnati Crank Planer.
24"x24"x10" Liberty, 1 head.
30"x30"x10" American, 1 head.
33"x33"x8" Ohio, 2 heads.
54"x54"x26" Niles-Bement-Pond, 3 hds.

MISCELLANEOUS

Automatics, Nos. 5-A and 6-A Potter & Johnston, late types.
Bolt Threading Mche., 2½" Landis l. a.
Boring Mill, No. 1 Barrett Horizontal, 3" diameter bar.
Boring Mill, No. 2½-A Universal Horizontal, 2½" diameter bar.
Boring Mill, Rockford Horizontal, 3½" diameter spindle.
Boring Mill, 72" Bickford Vert., 2 hds.
Boring Mill, 51" Bullard Vertical, 2 hds.
Boring Mill, 36" Bullard Rapid Prod. Vertical, turret and side head.
Boring Mill, 30" Gisholt Vertical, turret head, power rapid traverse.
Broaching Machines, Nos. 2 and 3 J. N. LaPointe, late types.
Chucking Machines, Nos. 22, 23 & 24 New Britain Automatic.
Die Sinkers, Nos. 2 and 3 Pratt & W.

Hack Saw, 13"x16" Peerless H.S.Pwr. Hammers, 40 and 60 lb. Bradley rubber cushioned helve.
Keyseater, No. 1 Davis, arr. for m. d., cap. 1" keyways.
Lathes, Nos. 6 & 9 LeBlond Multi-Cut. Press, 15 ton Lucas Power Forcing, b. d. Press, No. 21½ Bliss O.B.I. Grd. Pwr. Press, No. 91-D Toledo Double Crank Geared Power.
Press, P. G. No. 6 Ferr. Grd. Power.
Press, No. 83-C Michigan Dbl. Crank Grd. Power, 42" between uprights.
Shear, No. 511-E Toledo Power Gap Sq., cap. 73" long, 11 gauge.
Tapping Machines, Nos. 1, 2 & 3 B. G. Garvin Automatic.
Thread Millers, 6"x14", 6"x80" P. & W.
Welder, Spot, Federal Electric, cap. 2 pieces of ½".

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Lathes

- 1-46" x 21' Putnam.
- 1-45" x 24' Pond.
- 1-42" x 71' American Grd. Hd.
- 1-42" x 26' American Grd. Hd.
- 1-36" x 71' American Grd. Hd.
- 1-36" x 34' American Grd. Hd.
- 1-30" x 12' L. & S. Sel. Grd. Hd.
- 5-28" x 18' Niles-Bement-Pond.
- 10-26" x 16' Bridgeford.
- 5-26" x 14' Niles-Bement-Pond.
- 5-36" x 12' Bridgeford.
- 40-26" x 10' Niles-Bement-Pond.
- 15-26" x 10' Whitcomb-Blaisdell.
- 44-26" x 10' Bridgeford.
- 9-23" x 12' LeBlond.
- 5-20" x 22" x 16' American.
- 6-20-22" x 8' American.
- 1-19" x 12' LeBlond Grd. Hd.
- 3-20" x 8' Cisco.
- 1-18" x 8' Chard.
- 1-16"-18" x 8' American Grd. Hd.
- 1-16" x 8' Hendey.
- 1-16" x 10' Sundstrand Mfg.
- 2-14" x 8' Lodge & Shipley.
- 3-31" Fitchburg Lowing.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 7-No. 5-A Potter & Johnston.
- 2-1" x 5" and No. 33 New Britain.
- 3-No. 82 National Acme.

Turret Lathes

- 2-26" Libby. 3-21" Gisholt.
- 10-24" Steidle; 4-24" Gisholt.
- 1-No. 3-A Warner & Swasey.
- 1-No. 3 Cincinnati-Acme Univ.
- 2-No. 6 Brown & Sharpe.
- 1-No. 2-B Foster.
- 1-No. 2-A Warner & Swasey.
- 3-3" x 38" Jones & Lamson.
- 4-2-spindle Jones & Lamson.
- 1-16" Cincinnati-Acme-Fox.
- 1-14" Warner & Swasey.

Radial Drills

- 1-21" Gang Geared.
- 1-3" American.

Vertical Boring Mills

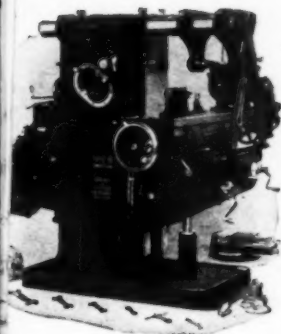
- 1-14'-20' Niles Extension.
- 1-10' Niles; 1-72" Niles.
- 1-96" Betts.
- 1-72" Cincinnati. 1-72" Bickford.
- 1-61" Baush. 1-51" Baush.
- 1-84" Bullard. 1-51" Bullard.
- 2-48" Colburn; 1-42" Colburn.
- 2-42" Gisholt. 3-42" King.
- 1-36" Bullard, Rapid Production.
- 2-36" Gisholt. 2-32" King.
- 1-30" Gisholt. 1-30" Flander.

Horizontal Boring Machines

- 1-No. 1 Cleveland.
- 1-5" Bar Ingersoll.
- 4-No. 1 Barrett. 2-Rock'd 2" bar.
- 1-No. 3 Barnes.

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- 1—No. 1 13/16" Foster.
- 1—No. 6 2 1/2" Warner & Swasey.
- 1—No. 10 3" Hardons & Oliver.
- 2—No. 8 3/4" Warner & Swasey.

Drill Presses

- 1—No. 12-C Fox.
- 1—No. 12 Natco.
- 1—No. 14 Fox.
- 1—No. D-31 Fox.
- 1—No. 17 2-spindle Foote-Burt.
- 1—No. 4 6-spindle Foote-Burt.
- 1—No. 4 4-spindle Foote-Burt.
- 1—6-spindle H. & W.
- 1—2-spindle H. & W.
- 1—22" Barnes, Self Oiling.

Gear Cutters and Hobbers

- 1—No. 5 60" Brown & Sharpe.
- 3—No. 36-H Gould & Eberhardt.
- 1—36" x 14" G. & E.
- 1—No. 3-26" Brown & Sharpe.
- 4—No. 12 Barber-Colman.
- 1—No. 24-H 24" x 12" G. & E.
- 5—No. 6 Fellows.
- 1—No. 3 Barber-Colman.

Vertical Millers

- 2—No. 6 Becker.
- 1—No. 5 Brown & Sharpe.
- 1—No. 8 Becker.
- 2—No. 2 Cincinnati.
- 1—No. 2 Brown & Sharpe.

Milling Machines

- 1—No. 5 Cincinnati.
- 3—No. 3 Cincinnati.
- 2—No. 3 Brown & Sharpe.
- 1—No. 2-B Milwaukee.
- 1—No. 2 Brown & Sharpe.
- 1—No. 1-B Milwaukee.
- 1—No. 21 Brown & Sharpe.
- 2—No. 1 Brown & Sharpe.
- 2—No. 20—Ohio.
- 12—No. 25 Becker.
- 2—No. 2-Y Brown & Sharpe.
- 1—No. 2-B Milwaukee Universal.
- 1—No. 2-M Cincinnati Universal.
- 1—No. 3-H LeBlond Universal.
- 1—No. 3 Garvin Duplex.
- 4—Type B Briggs.

Slab Millers

- 1—24"x13"x20' Ingersoll.
- 3—24"x24"x12' Ingersoll.
- 1—36"x30"x7' Newton.
- 1—45"x17' Ingersoll.
- 1—50"x20' Ingersoll.

Planers

- 1—72"x84"x12' Gray.
- 1—60"x48"x12' N.-B.-P.
- 1—56"x56"x16' Cincinnati.
- 1—45"x45"x10' Gray.
- 1—45"x48"x16' Niles - Bement - Pond.
- 3—36"x36"x18' Cincinnati.
- 2—36"x36"x8' Ohio.
- 1—26"x26"x10' Gray.
- 2—24"x24"x6' Gray.

Presses.

- 1—No. 4 1/2 R. & K.
- 1—No. 4 Walsh.
- 1—No. 54 Bliss.
- 1—No. 73 1/2 Bliss.
- 1—No. 10 Z. & H. Percussion.
- 1—No. 59 Toledo.

Grinders

- 1—26—37 1/2"x96" Norton Gap.
- 1—18"x96" Norton.
- 2—16"x50" Norton.
- 1—14"x72" Norton.
- 4—14"x50" Norton.
- 1—12"x120" Landis.
- 1—10"x72" Norton.
- 1—10"x52" Landis.
- 6—10"x50" Norton.
- 4—10"x24" Norton.
- 2—10"x36" Norton.
- 3—No. 12 8x36" B. & S.
- 7—6"x32" Norton.
- 1—No. 22 Heald Rotary Surface.
- 1—18" Graham Surface.
- 1—No. 60 Heald.
- 9—No. 70 Heald.
- 1—Bath Universal.

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20"x12' American Geared Head Lathe, taper attachment.
36"x14' Lodge & Shipley Triple Geared Lathe.
36"x16' L. & S. Geared Head Lathe, light pattern.
2A W. & S. Tur. Lathe. arr. for bar & chucking.
36" Bullard Vertical Turret Lathe, New Era type.
36"x36"x20' Pond Planer, 2 rail heads and one side head.
72"x54"x12' Niles-Bement-Pond Planer.
60" Brown & Sharpe Spur Gear Cutter.
No. 255 Heald 12" Rotary Surface Grinder.
12"x18" Cincinnati Plain Grinder.
10"x36" Norton Plain Grinder.
10"x50" Norton Plain Grinder.
No. 2 Brown & Sharpe Universal Grinder.
No. 4 16"x72" Cincinnati Universal Grinder.
4' Cincinnati Plain Radial.
No. 2 Colburn Mfg. Type Drill Press, 2-spindle.
6' Cincinnati Bickford Full Universal Radial.
4' American Radial, closed head type, s. p. d.
No. 2 Baker Keyseater.
No. 3 Cincinnati Vertical High Power Miller with rotary table, power feed to rotary table.
No. 3 Cincinnati High Power Miller s. p. d.
No. 2-B Milwaukee Universal, double overarm, div. head.
No. 3-B B. & S. Heavy Plain Miller, s. p. d.
No. 3B Milwaukee Plain Milling Machine, vertical attach.
No. 5 Cincinnati, s. p. d., round overarm, vertical attach.
18" Cincinnati Plain Automatic Miller, s. p. d.
18" Cincinnati Duplex Automatic Miller, s. p. d.
60" King Vertical Boring Mill.
No. 2 Rochester Horizontal Boring Mill.
20" Gould & Eberhardt Shaper, cone drive.
No. 2 Fischer Oil Groover.

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Lathes

- 40"x20" Wickes heavy duty, S. C.,
d. b. g.
36"x18" Fifield Engine Lathe.
26"x18" Walcott, 3S. C. D. B. G.
22"x18" American Geared Head,
S. P. D. Q. C.
27"x12" Sidney H.D. 3 S.C. B.B.G.
21"x10" LeBlond, H. D. Grd. Hd.
15"x10" Whitcomb-B. Q. C. 3 S. C.
18"x 8" Lodge & S. G. H. S. P. D.
18"x8" Lodge & Shipley, cone dr. Q.C.
14"x6" Hendey, Yoke Head, Q. C.

Grinders

- No. 70 Heald Grinder.
No. 60 Heald Grinder.
16"x72" Landis Crankshaft late type.
10"x72" Norton pl. latest type, m. d.
16"x48" Landis Crankpin self-con.
No. 2 Landis, Universal.
6"x18" Landis, self-contained.
No. 1 LeBlond Tool Grinder.
Modern Chaser Grinder.

No. 1 1/2 Valley City, Plain.
No. 6 Whitney Hand Millers.

Planers

- 16x16x36" Pratt & Whitney Planer.
24"x24"x6" Lodge & Davis Planer.
26"x26"x12" Whitcomb-B., 2 heads.
36"x36"x12" Gray, 2 heads.
48"x48"x16" D. & H. Opens. 2 hds.
48"x48" Gray, three heads.

Radial and Upright Drills

- 5" Cincinnati-Bickford, Gear Box
S. P. D. Enclosed head.
4" Morris Semi-Enclosed Hd., S.P.D.
with motor.
4" Bickford, S. P. D. thru gear box.
3" Carlton, Speedy-Sensitive, cone dr
26" Cincinnati Upright, C. D.
26" Rockford, T. A., C. D.
26" Rockford Upright, C. D.
6-spindle Rockford 20" B. G. P. F.
20" Barnes Camel Back.

34" BULLARD NEW ERA VERTICAL TURRET LATHE

Gear Cutters

- No. 3-26" Brown & Sharpe, late type.
No. 3-36" Brown & Sharpe, late type.
36" Whiton Auto. Bevel & Spur.
No. 1 Farwell Gear Hobber.
18-H Gould & Eberhardt Hobber.
78"x24" S.S. Type Gear Hobber.

Boring Mills

- 42" Bullard Rap. Prod. One plain and
one turret head.
34" Gisholt Vertical one turret head.
34" Bullard New Era, rail & side hd.
72" Wain & King Vert. 2 hds. grd. fds.
96" Bickford Vertical.
No. 1 Rockford, Horizontal 2" bar.

Milling Machines

- No. 5 Brown & Sharpe Plain.
No. 4 Cincinnati, Plain.
No. 2 Becker Vertical Rotary table.
No. 2-A Becker Vertical Rotary table.
No. 3 Brown & Sharpe, Plain.
No. 5 B. & S. plain cone drive.
No. 28 Osterlein, Plain.

Shapers

- 15" Smith & Mills.
24" Barker, B. G. Crank.
24" Queen City heavy duty, cone dr.
24" Hendey.
20" Steptoe B. G. Crank.

Miscellaneous

- 1" National Bolt Cutter, complete.
1 1/2" Acme double spindle Stay Bolt
Cutter, with Landis Heads.
No. 2 Kane & Roach Multiple P. & S.
50 lb. Little Giant Hammer.
1/2" Landis Double Spdl. Bolt Cutter.
No. 42 Toledo Press.
No. 75 1/2" Blum open back, geared.
No. 75 Toledo Press geared.
Wickes Punch & Shear, 48" throat,
1 1/4" thru 1 1/2".
No. 8 Long & A. Punch & Shear.
No. 1 Badger State Alligator Shear.
No. 2 Warner & Swasey Turret Lathe.
No. 2 Garvin Vertical Tapper.

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 1500-3500 lb. Erie Steam Forging Hammers.
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 Nos. 1 and 2½ Billings & Spencer Straight Sided Trimming Presses.
 Nos. 10 and 20 Quickwork Rotary Shears, 60" and 30" throat
 No. 52-A Waterbury-Farrel 8-hole Dial Press.
 No. 37½ Bliss S. S. Press, 6½" stroke.
 Solid Back Presses: Nos. 3 and 4 Stiles Patt., No. 33 Toledo, No. 34
 Toledo Grd., No. 3-A Bliss Adjust. Bed; No. 16 Bliss Hor. Pr.
 Rock River Sgl. End Punch, 16" thrt., arch. jaw, cap. 1" thru 1".
 Style EF Cleveland SE 24" throat, cap. 1¼" thru 1", arch. jaw.
 No. 2 Hilles & Jones SE, 20" throat, cap. 1" thru ¾", rapid action MD.
 Long & Allstatter Single End Punch, 48" throat, cap. 2¼" thru 1".
 Toledo Gate Shear, Geared cap. 60" x No. 11 gauge.
 New Doty Guillotine Shear, cap. 3½" round, MD.
 RFV 30 Pels Bar and Angle Shear, cap. 3" rd., 7x7x¾ angles.
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 Die Sinks: No. 3 P.&W. No. 5 Jackson; Nos. 5 and 6 Becker.
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 1", 1½", 2" Landis 2-Spindle with and without lead screws.
 Thread Rollers ¾", ½", ⅜" and ¼" capacity.
 Pipe Threaders, Williams 8"; Saunders 4".
 Thread Rollers, Cold Headers and Bolt Trimmers, Bolt Pointers,
 Nut Tappers and Hot Pressed Nut Machines.
 6 & 8-Sp. National and Acme Semi-Auto. Nut Tappers, ½" to 1½".
 Blakeslee Metal Washer, motor drive.
 Wire Straighteners, 3/16", ¼", 5/16" and ¾", Shuster, Etc.
 No. 1A Am. Carbonizing Furnace, Nichrome Retort & Heat Contr.
 No. 65 American Gas Heating Furnaces.
 General Electric Centrifugal Compressors.
 Lennox Throatless Shear, cap. 1/8".
 Williams Chip Crusher or Shredder; Forging & Spring Tapering Rolls.
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32"x10' B. & E., q.c.hvy. duty \$1200.	16"x6' Cincinnati, q. c. collets. \$ 500.
20"x10' Monarch q. c. d. b. g. 750.	16"x6' Bradford, q. c. tap. att. 550.
18"x8' Hendey q. c. yoke head 550.	16"x6' South Bend, tap. att. 225.
18"x8' Gidding & Lewis q. c. 525.	14"x6' Hendey q.c.t.a., collets. 700.
16"x10' LeBlond q. c. 475.	14"x6' Mulliner, q. c. tap. att. 575.
16"x8' Whitcomb q. c., t. att. 400.	14"x6' Flather, q.c. heavy, (2). 450.
16"x8' Hendey grd. hd. tap. att. 850.	12"x5' Hendey, q. c. yoke head 475.
14"x8' Champion q. c., t. att. 375.	11 1/2"x6' Sidney q. c., (new) 350.
14"x6' Lodge & Shipley q. c. 300.	9"x12" Sundstrand grd. hd. (2) 200.
16"x6' LeBlond Pro Lathes(2) 250.	8" grd. hd., motor dr. Lathe. 125.

SHAPERS

12" Walcott Crank Shaper. \$ 150.	16" American Crank Shaper. \$ 475.
16" Smith & Mills Crk. Shaper 225.	16" Cincinnati, single p. d. 550.
17" Smith & Mills Crk. Shaper 350.	16" Hamilton Crank Shaper 475.
21" Smith & Mills crank, b. g. 575.	16" Gould & Eberhardt 675.

DRILL PRESSES

28" Cincinnati, sliding head. \$ 275.	4-sp. Kokomo Hi-Speed b. b. \$ 600.
26" Superior, sliding head. 250.	4-spindle Kern ball bearing. 450.
26" Prentice, slid. hd., tap. att. vise table, single pulley dr. 375.	4-spdl. Allen b. b. No 2 taper 450.
22" Snyder sliding head. 150.	6-spindle Kern ball bearing. 625.
22" Cincinnati tap. att. b. g. 125.	4' Carlton Radial 800.
14" Canedy Otto sliding head, motor driven, Timken Bearings (new) 125.	20" Barnes, Plain (3), each 50.

GRINDERS

6"x32" Norton Plain Grinders. \$ 350.	No. 2 Oesterlein Cut. Grinder. \$ 250.
12"x36" Landis Univ. Grinder 625.	No. 6 Gardner Disc Grinder. 200.
5"x14" Greenfield Pl. Grinder 275.	24" Ransom 5 h.p., m.d.Grind. 160.

MILLING MACHINES

No. 3 LeBlond Plain, d. b. g. \$ 525.	No. 1A Kearney & T. pl. s.p.d. \$ 650.
No. 1 1/2 B. & S Universal. 550.	No. 12 B. & S. Prod., (2) ea. 250.
No. 1 1/2 American Plain. 400.	No. 1 1/2 Oesterlein Plain. 275.

MISCELLANEOUS

Gisholt Tub Grinder. \$ 100.	Robbins 2" m. d. Pipe Mche. \$ 200.
Hendey T. R. Bench Planer. 200.	1" Acme Stud Threader. 400.
1/2" Pneumatic Tappers, (2) ea. 165.	5 1/2" Cap Newton Cold Saw. 225.
No. 4 Foster Scr. Mch., Compl. 400.	No. 3 LaPointe Dbl. Broach. 300.
1/2" Shuster Riveter & Spinner. 110.	No. 3 Lees-B. Thread Miller. 325.
12x12" Racine m. d. Hack Saw 300.	No. 10P Marshall's Thr Shear 260.
Dwight Slate Mark. Mch. (2). 75.	2 1/2" Acme Tur. Lathe, Compl. 325.
No. 1 Baker 1 1/2" cap. Keyseater 275.	No. 6 Warner & Swasey, grd. friction head, collets. 475.
No. 3 B. & S. 3/8" Gear Cutter 275.	

The Toledo Mchy. Exch. Co.
18 North St. Clair St., Toledo, Ohio

Rebuilt Tools with a **MOREY Guarantee**

BORING MILLS

- 2—Bullard 24" N.E., 36" R.P. s. h.
- 2—Gisholt 52", 60", 3 heads.
- 1—Sellers 72" vertical, 2 heads.
- 1—Pond 10-24' vertical.
- 1—N-B-P 10-16' vertical, 2 heads.
- 1—Betts 12' vertical, 2 heads.
- 1—Niles 14' vertical.
- 1—Niles 16-24' extension vertical.
- 1—Barrett No. 3 horizontal.
- 1—Cleveland 24" bar, horizontal.
- 1—Pawling & Harnischfeger 34" bar
- 1—N.-B.-P. 44" bar, duplex contr.
- 1—Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 14—Baush Nos. 1 and 2.
- 2—Fox D-31.
- 1—Moline No. 5-D cylinder borer.
- 3—Nato Nos. 11, 12.

DRILLS—Upright

- 2—Barnes 20" and 24" camel.
- 5—Detroit 5-spindle.
- 1—Foote-Burte 4-spindle.
- 6—Henry & Wright 2 & 4-spindle.
- 2—Pratt & Whitney No. 2 gun.
- 1—New Turner No. 3 vertical.

DRILLS—Radial

- 1—American 3" motor drive.
- 1—Baush 6'.
- 2—Dreses 5', 6' plain.
- 1—American 6' triple purpose.
- 1—N-B-P. 96" plain.

GEAR CUTTERS

- 7—B. & S. 3x26, 3x36, 4x36.
- 2—B. & S. No. 6, 60" cap.
- 1—Brown & Sharpe No. 13.
- 6—Cincinnati 16" Hobbers.
- 6—Barber-Colman No. 12.
- 3—Fellows Gear Grinders.
- 6—Fellows Nos. 6, 61, 65, 615.
- 3—Gleason 6", 11", 18".
- 2—G. & E. Nos. 18-H, 36-H.

GRINDERS

- 4—Cincinnati No. 2, 12x36, plain.
- 9—Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 7—Norton 3x18, 6x32, 10x24, 10x36, 10x50, 16x36, 10x72 plain.
- 1—Norton 16x50 crank.
- 2—Landis 10x52 cam.
- 2—Diamond Nos. 2 and 3 surface.
- 1—Springfield Brandes vert.
- 12—Heald Nos. 65, 60, 70, 75, 80.
- 1—Bath Spline.
- 1—G. & L. No. 12 Teromatic.
- 1—P. & W. 22x7 Surface.

PLANERS

- 2—Putnam 26x26x8", 2 heads.
- 1—Detrick & H. 30"x10", 1 bd., o. s.

- 1—D. & H. 48"x96"x20' m.d., 3 hds.
- 1—Gray 38"x38"x20", 3 heads.
- 1—Cincinnati 48"x48"x16", 4 hds.
- 1—Gray 48"x48"x12", 2 heads.

HAMMERS

- 1—New Bradley 20 lb. helve.
- 1—Chambersburg 400 lb. bd. drop.
- 1—B. & S. 800 lb. drop.
- 1—Toledo 1500 lb. bd. drop.

MILLING MACHINES

- 6—B. & S. Nos. 2, 2B, 4-B, 5-B pl.
- 9—Cincinnati Nos. 2, 3, 3-S, 4, 5 pl.
- 2—Garvin No. 134 plain.
- 8—Briggs type "A" mfg.
- 1—Briggs Type "B", 72" table.
- 1—Ingersoll 24"x24"x10' plan. type.
- 1—Cincinnati No. 4, s. p. d. vert.
- 1—Cincinnati No. 2 vert., cone dr.
- 1—Taylor & Fenn vertical.
- 13—Becker Nos. AB, 6, C1, vert.
- 1—Cincinnati 18" duplex.
- 1—Kemp Smith No. 33.
- 7—P. & W. 4x12, 6x14, 6x48, 6x80 th.
- 3—P. & W. 5", 8", 10" auto.

LATHES

- 2—Hendey 14"x6", 16"x8' grd. hd.
- 2—Sebastian 18"x5'.
- 8—Lodge & Shipley 18"x8' selective geared head.
- 1—LeBlond 23"x10'; s. p. d.
- 1—Reed Prentice 24"x12'; m. d.
- 1—Boye & Emmes 24"x12', taper.
- 1—LeBlond 25"x16'; cone drive.
- 3—LeBlond 26"x10' duplex crank.
- 1—Reed Prentice 27"x12' s. p. d.
- 1—Johnson 30"x12'; m. d.
- 1—Niles-Bement-Pond 42"x24'.
- 7—LeBlond No. 12 multicuts.

Lathes of all sizes and types.

SCREW MACHINES—Automatic

- 14—Cleveland 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100", 102", 104", 106", 108", 110", 112", 114", 116", 118", 120", 122", 124", 126", 128", 130", 132", 134", 136", 138", 140", 142", 144", 146", 148", 150", 152", 154", 156", 158", 160", 162", 164", 166", 168", 170", 172", 174", 176", 178", 180", 182", 184", 186", 188", 190", 192", 194", 196", 198", 200", 202", 204", 206", 208", 210", 212", 214", 216", 218", 220", 222", 224", 226", 228", 230", 232", 234", 236", 238", 240", 242", 244", 246", 248", 250", 252", 254", 256", 258", 260", 262", 264", 266", 268", 270", 272", 274", 276", 278", 280", 282", 284", 286", 288", 290", 292", 294", 296", 298", 300", 302", 304", 306", 308", 310", 312", 314", 316", 318", 320", 322", 324", 326", 328", 330", 332", 334", 336", 338", 340", 342", 344", 346", 348", 350", 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Automatic Screw Machines

$\frac{3}{8}$ - $\frac{1}{2}$ " Cleveland model A.

$\frac{3}{8}$ - $\frac{1}{2}$ " Cleveland model B.

$\frac{7}{8}$ " Cleveland model A.

$1\frac{1}{4}$ " Cleveland model A, dbl. cross slide

$1\frac{1}{4}$ " Cleveland model A, single cross slide.

2" Cleveland model A, double cross slide.

2- $2\frac{3}{4}$ " Cleveland model A, dbl. cross slide.

$4\frac{1}{2}$ " Cleveland model A.

$1\frac{1}{4}$ " Gridley multiple, serial 8167.

Nine No. 2 B. & S. Turret Formers.

OTHERS

No. 6 Becker Vertical with Rotary.

4-spindle Leland-Gifford Ball Bearing Drill.

No. 3 LeBlond heavy Miller, vertical attach.

6"x32" Norton Grinders, (two).

No. 70 Heald Internal Grinder.

No. 3 Foster hand Screw Machine.

2X Garvin Automatic Tapper.

42" Western Radial Drill.

36"x15' Betts Planer, two heads.

7 High Speed Drills, Henry & Wright, Sipp
Allen, Kokomo—all rebuilt.

*The stock list tells about our other
machines, with pictures. Ask for it.*

A. D. White Machinery Co.

108 N. Jefferson St.,

Chicago, Ill.

Attractive Prices To Move Stock

- BORING MILLS:**----- Betts Horizontal Table Type Mill, 4 $\frac{1}{2}$ " bar.
D. & H. Horizontal Floor Borer 5" bar.
Giahok 72" Vert., M. D.
Betts 7/10" Vertical.
- DRILLS:**----- No. 124 Buffalo Post.
14" Rockford, 24" Foote-Burt.
5' Prentice: 10' Bausch Radials.
2' Foadick, 3' Bickford, t. a.
Natco No. 10 C-12 Spindle, No. 1 M. T.
Moline 10-spindle, No. 5 Morse taper.
Baush Multiple Drill, 12-spindle.
12"x6" Barnes.
- LATHES:**----- 14"x6" Hendey, t. a.
24"x12" Rockford, taper att.
26"x16" Prentice, taper attachment.
36"x18" Porter.
63 $\frac{1}{2}$ "x36" 6" Centers Niles H. D.
60"x38" Bement-Miles.
- MILLING MCHES.:**----- Ingersoll Fixed Rail, 24"x21"x20" table.
Ingersoll Slab 30"x30"x12", m. d.
No. 4 Brown & Sharpe Universal.
Standard No. 4 $\frac{1}{2}$.
B. & S. No. 00 Hand.
- PUNCH & SHEAR:**----- Canedy-Otto, hand power, $\frac{1}{2}$ "x $\frac{1}{2}$ ".
No. 6 Long & Allstatter S. E.
Royersford No. 3, 16" throat 1"x1".
Wais & Roos 15" throat, $\frac{3}{4}$ "x $\frac{1}{2}$ ".
Masillon 22" throat, 1"x1" arch. jaw.
Cleveland "EF", 36" throat 1 $\frac{1}{2}$ "x1".
Cleveland E. F. 48" throat 1 $\frac{1}{2}$ "x1".
Beatty Single End 48" throat 1 $\frac{1}{2}$ "x1 $\frac{1}{4}$ " motor drive.
Industrial Double End, $\frac{3}{8}$ "x $\frac{3}{8}$ ".
No. 2 Hilles & Jones hor. punch, 8" throat.
Lennox Rotary Bevel Shear, $\frac{3}{4}$ ".
- GRINDERS:**----- Landis No. 5 Cylinder.
Bryant No. 6 Chucking.
Cincinnati 10"x48" Grinder.
Norton Universal Cylinder External 10"x50".
- SHAPERS:**----- 14" 20" 24" Gould & Eberhardt, b. g.
- MISCELLANEOUS:**----- Bending Rolls, 10"x $\frac{3}{4}$ " Cleveland motor drive.
Boiler, 100 H. P. Horizontal Tub.
Brake, Chicago Hand, 72"x1/16".
Hammer, 250 lb. Little Giant m. d.
Motors, 5 and 7 $\frac{1}{2}$ H. P.—3-60-220.
Planers, Cincinnati 48"x44"x12".
Planer, 48"x48"x21" Gray, 3 heads.
Planer, 48"x48"x16" D. & H. Openside.
Presses, No. 0 Consolidated, O. B. I.
Presses, No. 1—No. 3 V. & O.—O. B. I.
Presses, Nos. 18 and 19 Bliss, Perkins.
Press, 50 ton Lourie Hydraulic.
Presses, Arbor, No. 3 $\frac{1}{2}$ Greenerd; No. 1 Atlas.
Saws, Hunter 24" hi-speed, m. d.; 18" Higley Cold.
Screw Machines, Cone Automatic $\frac{3}{8}$ ", M. D.
Screw Mchs., 2 $\frac{1}{4}$ "x11" Acme; Meriden, 6 hole turret.
Surface Plate, 44 $\frac{1}{2}$ "x6" 8", 6 $\frac{1}{2}$ " thick.

RUSSELL MACHINE COMPANY
1447 Oliver Building, PITTSBURGH, PA.

REAL BARGAINS

AIR COMPRESSORS

- 3200' General Electric.
- 590' Union 14"x18".
- 355', 12"x10" Ingersoll-R. ER1.
- 139', 9"x9" Curtis.
- 100', 8"x8" Chicago Pneumatic.
- 140', 8"x8" Gardner.
- 72', 7"x6" Ingersoll-Rand ER1.
- 80', 6"x6" Gardner.
- 52', 6"x6" Blaisdell.
- 40', 6"x6" Gardner.
- 21', 4"x4" Gardner.

AUTOMATICS

- 14" Bullard Multi-Au-Matic.
- 4", 14" and 24" Gridley 4-spindle.
- 1" and 14" New Britain.
- 5A and 6A Potter & Johnston.
- 14" Fay, Flanders type.
- 53, 55 and 56 National Acme.

BROACHES

- 2—No. 4 OILGEAR hydraulic.
- 2—No. 3 American Rack type.
- No. 4 LaPointe Hudson.
- No. 3B J. N. LaPointe.

DRILLS—Radial

- 3' American.
- 24' Morris.
- 4' Hammond.
- 5', 6' and 8' Western.
- 6' Niles-Bement-Pond Universal.

GEAR CUTTERS

- 12" Gould & Eberhardt Hobbers.
- No. 12 Barber Colman.
- 16" Cincinnati Hobber.
- No. 5A Lees-Bradner.
- 18" Gould & Eberhardt Hobber.
- 24"—36" Gould & E. Hobber.

GRINDERS

- 6"x10" Landis.
- 6"x32" Norton.
- 8"x18" Modern.
- 10"x24" Landis.
- 10"x36" Norton.
- 10"x52" Landis.
- 12"x36" Cincinnati.
- 12"x72" Landis.

LATHES

- 16"x 7" South Bend.
- 18"x 8" Bradford.
- 20"x 8" LeBlond.
- 20"x104" Claco.
- 24"x 12" Bradford.
- 27"x 12" Boye & Emmes.
- 32"x 14" Schumacher Boye.
- 36"x 16" Johnson.
- 36"x 18" Schumacher Boye.
- 48"x 20" New Haven.
- 52"x 16" Pittsburgh.

LATHES—Turret

- 1" Millholland, bar feed.
- No. 2 Foster.
- No. 4 Warner & Swasey.
- 2" No. 7 Bardons & O., bar feed.
- 2", No. 6 Warner & Swasey.
- 21" and 24" Gisholt.
- 34"x36" Cincinnati Acme.
- Jones & Lamson 2-spindle.

MILLS—Vertical Boring

- 24" Bullard New Era.
- 36" Bullard Rapid Production.
- 36" Niles.
- 42" Bullard.
- 42" Detrick & Harvey.
- 50" Bickford.
- 84" Niles.
- 96" Betts.
- 120" Niles.

MILLS—Horizontal Boring

- 24" bar, No. 1 Cleveland.
- 3" bar, No. 3A Universal.
- 3" bar, No. 0 Fosdick.
- 6" bar, Pedrick Floor Type.
- 6" bar, Gray.

MILLERS

- No. 4 Cincinnati single pulley dr.
- No. 3 Kemp Smith.
- No. 3 Brown & Sharpe.
- No. 2B Heavy Brown & Sharpe.
- No. 2 Cincinnati.
- No. 14 Rockford.
- No. 14 Brown & Sharpe.
- No. 14A Milwaukee.

MILLERS—Production

- 24" Cincinnati Duplex.
- 12" Cincinnati Plain Mfg.
- 40" Ohio Tilted Rotary.
- 26"x24"x6" Ingersoll.
- 30" Ingersoll Rotary Table.
- 34" and 42" Briggs Type B.

PLANERS

- 30"x30"x 8' Cleveland openside.
- 30"x30"x12' Cleveland openside.
- 36"x36"x12' Cincinnati.
- 42"x36"x16' Cleveland openside.
- 48"x48"x10' Liberty.

SHAPERS

- 15" Steptoe.
- 16" Springfield.
- 20" Hendey.
- 20" Steptoe.
- 24" Gould & Eberhardt.
- 24" Kelly.
- 25" Springfield.
- 28" Columbia.
- 30" Walcott.
- 36" Morton Draw Cut.

Miles Machinery Co., SAGINAW, W.B. MICH.

All In Chicago Stock

TURRET LATHES

- | | |
|---|--|
| No. 4 Warner & Swasey Universal
Turret Lathes. | 14"x9' Acme, P. F. |
| 24" Steidle Turret Lathe. | No. 4 Bardons & Oliver, P. F. with
and without pan. |
| Cleveland automatics, 8" and 10". | |

BORING MILLS

- | | |
|---|------------------------------------|
| No. 31 Lucas Horizontal Boring
Mill, 24" bar, single pulley drive. | 44" Putnam vertical 2 heads, m. d. |
| | 30" Colburn turret head. |

MILLING MACHINES

- | | |
|---|--|
| No. 2-B Kearney & Trecker, plain. | No. 2 B. & S. plain cone head, verti-
cal attachment. |
| No. 2-B Kearney & Trecker, vert. | No. 28 Ohio plain, cone head. |
| U. S. Hand miller. | No. 33 Kemp Smith Prod. miller. |
| No. 3 Kemp Smith plain, cone head. | No. 3 Cincinnati plain Hi Power |
| No. 1 Kemp Smith plain, cone head. | Gooley & Edlund Lincoln type. |
| No. 14 Brown & Sharpe plain cone
head. | No. 1 Kemp Smith univ. cone head. |
| No. 3 B. & S. grd. hd., a. c., m. d. | 18" Cincinnati automatic. |

LATHES

- | | |
|----------------------------------|------------------------------------|
| 12"x5' Hendey, q. c., taper att. | 16"x8' Cincinnati, q. c. |
| 14"x6' American, q. c. | 18"x5' Sebastian a. c., m. d. |
| 14"x6' Rockford, q. c., (new). | 18"x8' Boye & Emmes, q. c. |
| 14"x6' Flather, q. c. | 18"x8' Lodge & Shipley, quick chg. |
| 16"x8' South Bend, plain chuck. | 20"x8' American Heavy Duty, q. c. |
| 16"x8' Monarch, quick change. | 21"x8' LeBlond Heavy Duty. |
| 16"x8' Rockford, q. c., (new). | 20"x10' American quick change. |

SENSITIVE DRILLING MACHINES

- | | |
|-----------------------------------|------------------------------|
| New and Used 1, 2, 3 & 4 spindles | 3-spindle Avey ball bearing. |
| Allen b. b. drills. | 4-spindle Avey ball bearing. |

UPRIGHT RADIALS AND MULTIPLE DRILLS

- | | |
|-------------------------------|--------------------------------|
| 20" Barnes all geared. | 25" Barnes, stationary head. |
| 20" Excelsior, b. g. | No. 13 Pratt & Whitney, 16-sp. |
| 24" Superior stationary head. | |

SHAPERS

- | | |
|-------------------------------------|------------------------------------|
| 16" Rockford, cone. | 24" Columbia, single pulley (new). |
| 20" Columbia, single pulley, (new). | 24" Gould & Eberhardt cone. |
| 20" Gould & Eberhardt, cone. | 25" Smith & Mills cone. |

GRINDERS

- | | |
|------------------------------------|---------------------------------|
| No. 2 Oakley Universal Tool & Cut. | Diamond Tool & Surface Grinder. |
| Gisholt tool grinder. | 10"x36" Thompson Univ. T. & C. |

MISCELLANEOUS

- | | |
|------------------------------|-----------------------------------|
| 1" Landis Bolt Cutter. | No. 12 Barber-Colman Gear Hob. |
| 8" Landis pipe machine. | No. 6-36" Fellows Gear Generator. |
| 4" Oster, (new). | New Federal Presses, all sizes. |
| 6x6 Hack Saws. | 68N Bliss Double Action. |
| No. 3 Reynolds Screw Driver. | |

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Have just purchased a large quantity of high grade machine tools of all kinds which we are unable to list on account of time. Let us have your inquiries — We probably will be able to take care of your requirements — or write us for list.

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FLINT, MICH.

NEW 3 PHASE MOTORS CHEAP—FROM ½ H. P. UP

LATHES

- | | |
|---------------------------------------|---------------------------------------|
| 12"x 8' Cleveland, geared head. | 16"x 8' Hamilton, quick change. |
| 14"x 6' Carroll-Jamieson, new, q. c. | 18"x10' American, quick change. |
| 14"x 6' Hamilton, grd. hd., motor dr. | 20"x10' Hamilton, rapid production. |
| 14"x 6' Monarch, quick change. | 24"x12' LeBlond. |
| 14"x 6' Sebastian, grd. hd., m. d. | 24"x24' Prentice, with raising block. |
| 14"x8' Worcester. | 30"x60' & 34"x60' Fitchburg, Lo-Swing |
| 14"x 8' Sidney, double back geared. | South Bend, new, all sizes. |

TURRET LATHES and SCREW MACHINES

- | | |
|---------------------------------|-------------------------------------|
| No. 52 National Acme automatic. | 14" capacity Smurr & Kamen. |
| No. 53 National Acme automatic. | 14" Milholland. |
| No. 54 National Acme automatic. | 2x24 and 3x36 J. & L. |
| No. 4 Defiance, 14" capacity. | No. 1 Foster, 13/16" capacity, (2). |
| 8" Acme. | 1" Pratt & Whitney. |

SHAPERS

- | | |
|---------------------------------------|-----------------------------------|
| 14" Niles, traveling head. | 16" Lodge & Davis, crank. |
| 16" Barker. | 24" Rockford, back geared, crank. |
| 16" O. & S., b. grd., new, low price. | 24" O. & S. back geared crank. |

PRESSES

- | | |
|------------------------------------|------------------------|
| No. 10 and No. 15 Excelsior, foot. | No. 4 Federal o. b. l. |
| Nos. 3-A & 5-A Willard inclinable. | No. 5 Federal o. b. l. |
| Nos. 1, 1½, 2, 2½ Robinson, new. | Emco bench. |

DRILLS and RADIALS

- | | |
|---|--------------------------------|
| No. 1 Baush multiple. | 32" Hofer, sliding head. |
| Baush 5' radial. | 6" Ceiling drill. |
| Hilbert 3' radial. | 25" Kokomo high speed. |
| 22", 24", 26", 28" and 32", sliding hd. | 44" Stover. |
| 24" Bickford, tapping attachment. | Hole Hog, No. 66-D, 7-spindle. |

MILLING MACHINES

- | | |
|-----------------------------|-------------------------------------|
| No. 1½ American plain. | No. 25 Hecker plain, power feed. |
| No. 2 Kempamith plain. | No. 2 H Brown & Sharpe plain. |
| No. 3 Kempamith plain, new. | Ingersoll 24" x 20" x 9" horizontal |
| No. 4 LeBlond plain. | motor drive. |
| No. 25 Bilton. | |

GRINDERS

- | | |
|-------------------------------|---------------------------------|
| Nos. 1 & 78 W. & M. surface. | No. 60 Heald cylinder. |
| 6"x15" Fitchburg plain. | Schmitt cylinder grinder. |
| 12"x36" Cincinnati universal. | J B X, W. & M. tool and cutter. |
| 16"x42" Landis universal. | No. 10 Besly 18" double disc. |
| 36" and 66" Yates plate. | No. 20 Bryant, chucking. |

MISCELLANEOUS

- | | |
|--------------------------------------|--|
| Band saw, Clark, compound. | Planer, 24"x24"x6'. |
| Band saw, Napier 10"x10'. | Planer, 36"x36"x14' Gray, 2 heads. |
| Blower, No. 6 Piqua, pressure. | Planer, 42"x42"x12' Gray, 2 heads. |
| Blower, positive pressure, Leiman | Planer, 48"x48"x16" Cincinnati, 4 hd. |
| Boring mill, Colburn No. 3, tur. hd. | Punch & shear, 4"x10" throat. |
| Brake 10', Keene, 18 ga. | Riveting hammers, Nos. 1, 2, 3, 4-A |
| Brake, 12' Chicago Steel 18 gauge. | High Speed. |
| Broaching mchs., 1 and 3 LaPointe. | Sand blast, Boland. |
| Compressors, 6x8, 8x8 and 9x8. | Scale, 1500 lb. Toledo, dial type. |
| Gear cutter, No. 3—26 B. & S. | Shear, 60" Peck, Stow & W., 15 ga. |
| Gear cutter, No. 13 Brown & Sharpe. | Shear, No. 362 Robinson. |
| Gear miller, Bilton No. 1. | Shear, No. 562 Niagara. |
| Hammer, 150 lb. Standard drop. | Shear, circular, Pettingell, 60" thrt. |
| Pipe machines, 2", 4" & 6". | Threading mche., W. & P. 2-spindle. |
| Planer, 36"x36" Gray, heavy duty. | Washing machine, Blakeslee. |

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MACHINERY COMPANY
 COLUMBUS OHIO
 Dept. H.

Bath-Cleveland

BORING MILLS

4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 6 $\frac{1}{2}$ " bar Niles floor type, hor.
4" bar Bement table type, hor., m. d.
3 $\frac{1}{2}$ " bar Rochester.
42" King, motor drive.
44" Bausch, belt drive.
51" Niles-Bement-Pond, s. p. d.

60" Gisholt, arranged motor drive.
72" Sellers, arranged motor drive.
10-16" Niles & Bement-Miles ext.
16-24" Niles extension type.
12' Betts heavy duty.
14 and 16" Niles.

DRILLS

6' American triple purpose.
6' Pond radial.
21" Cincinnati-Bickford, sliding hd.
22" Barnes, sliding head.
24" Silver, sliding head.
24" Superior, sliding head.
23" Rockford, stationary head.

3-sp. Henry & Wright b. b., sens.
4-spindle Barnes.
4-spindle Foote-Burt.
6-spindle Moline cylinder borer.
8-spindle No. 11 Natco.
20-spindle No. 6 Fox multiple.
No. 25 Foote-Burt heavy duty.

FORGING, BOLT AND NUT MACHINERY

1", 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 3", 3 $\frac{1}{2}$ ", 4" & 5" Acme and Ajax upsetters.
1 $\frac{1}{2}$ " & 1" Waterbury-Farrel D.S.O.D. cold headers.
1 $\frac{1}{2}$ "x3" Manville & 1 $\frac{1}{2}$ "x4" Waterbury-Farrel S. S. D. cold headers.
1 $\frac{1}{2}$ " W.-F. cold pressed nut machines.

4" Acme 6-sp., semi-auto nut tapper.
1" Rickert-Shafer tapper.
Nos. 1 & 6 Williams-W. bulldozers.
1" Shuster wire straightener.
1 $\frac{1}{2}$ " Landis 3 head bolt cutter, motor drive.
5/16" four-slide wire formers.

GRINDERS AND GEAR CUTTERS

10"x24" Landis self-contained.
10"x52" Landis self-contained.

Nos. 2 and 24 Gardner b. b., disc.
72" G. & E. gear cutter, arr. m. d.

LATHES AND TURRET LATHES

16"x 8' Monarch, quick change.
17"x 8' Sidney, quick change.
18"x 8' Prentice g. h., q. c.
42"x30" centers L. & S. q. c., sel. hd.

No. 1B Foster universal turret.
3"x36" Jones & Lamson, grd. hds.
18" Libby geared heads.
24" Gisholts, belt and motor drive.

MILLING MACHINES AND KEYSEATERS

Type B Briggs, Lincoln 54x11 $\frac{1}{2}$ " tbs.
20"x7"x18" Oesterlein plain.
No. 0 Rockford, 30"x7 $\frac{1}{2}$ " table.
No. 1 Kampsamith 22"x8"x19" plain.
No. 2 Brown & Sharpe, vertical.

No. 6 Becker vertical.
Model B Becker vertical.
38"x10" Newton duplex miller.
No. 2 Baker Bros. keyseater, automatic feed.

PLANERS AND SHAPERS

42"x48"x18" D. & H. o. s., rev. m. d.
48"x96"x20" D. & H. o. s., extra hous.
48"x72"x22" D. & H. o. s., extra hous.
48"x48"x16" Cincinnati, 4 heads.

72"x72"x20" Ridgway, 4 heads.
96"x96"x16" Pond, 4 heads, belt dr.
96"x96"x18" Ridgway, motor drive.
36" Morton draw cut shaper.

PUNCHES AND SHEARS

40" throat Bement-M. punch, 1 $\frac{1}{2}$ -1".
2" Garrison steel bed alligator sh.
1 $\frac{1}{2}$ " Niagara circle shear.
10"x1 $\frac{1}{2}$ " H. & J. plate shear, m. d.

No. 4 Quickwork rotary shear, 1 $\frac{1}{2}$ ".
48" circle attachment.
Scully splitting shear.
10"x5/16" Ohl bend. brake, arr. m. d.

MISCELLANEOUS

Bending Rolls, 10"x1 $\frac{1}{2}$ " Cleveland.
Bending Rolls, 16"x1 $\frac{1}{2}$ " Hillis & J.
Blowers, Nos. 1 & 2 Buffalo Forge.
Cold Saw, No. 4B Cochrane-Bly, motor drive.
Hammer, 100 lb. Bradley helve.
Pipe machine, 4" Oster.
Press, Arbor, No. 3 Greenard.
Press, 4" stroke Excelsior s. s.

Press, No. 5 Consolidated inclinable.
Press, 400 ton Niles wheel, 96".
Profiler, No. 3 Garvin.
Riveter, 30 ton Hanna, 6" gap.
Riveter, 36"x20" Allen, 1" cap.
Rolls, Reclaiming, Ajax, with Rockwell furnace.
Slotters, 20" and 36" Bement crank.
Slotter, 48" Niles-Bement-P. grd.

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Tools in Excellent Condition at Reasonable Prices

- 1-18x8 Hendey Lathe, pan bed, taper attach, drawing in collets, serial No. over 21000.
- 3-16x8 Hendey Lathes pan bed, taper attach, drawing in collets serial No. from 10000 to 20000.
- 1-14x6 Hendey Lathe, pan bed.
- 2-12x5 Hendey Lathes pan bed, taper att., about 20000 serial number.
- 1-36x18 Putnam Lathe, geared face plate drive.
- 1-30x10 Niles Bement & Pond Lathe, motor drive without motor.
- 1-20x6 Reed Prentice geared head, motor drive with A. C. Motor, H. D.
- 1-30" Bullard Boring Mill.
- 1-No. 6 Becker Vertical Miller.
- 1-10" Pratt & Whitney Automatic Milling Machine.
- 2-No. 2 Cincinnati Universal Millers, cone pulley drive, fully equipped.
- 2-No. 5-B Becker Vertical Millers.
- 1-No. 3 Cincinnati Plain Milling Machine.
- 1-No. 5 Brown & Sharpe Vertical Milling Machine.
- 1-No. 1 Brown & Sharpe Universal Milling Machine.
- 1-No. 1A Milwaukee Milling Machine, single pulley drive.
- 1-No. 2 La Pointe Double Spindle Broaching Machine.
- 1-No. 24 New Britain Chucking Machine.
- 10-Four, three, two Spindle Barr Sensitive Drills.
- 1-Gardam 12 Spindle Multiple Drill.
- 1-Gardam 8 Spindle Multiple Drill.
- 2-Two Spindle Leland Gifford High Speed Drills.
- 2-Single Spindle Leland Gifford High Speed Drills.
- 1-Single Spindle Avey High Speed Drill.
- 3-24" Barnes Sliding Head Drill Presses.
- 1-Two Spindle Sipp with Power feed, High Speed Drill.
- 1-No. 2 Wilmarth & Marmon Universal Cutter & Reamer Grinder.
- 1-No. 2 Landis Universal Grinder.
- 1-No. 2 Brown & Sharpe Universal Grinder, very late model, like new.
- 1-No. 70 Heald Grinder.
- 1-6x32 Norton Cylindrical Grinder.
- 1-3x36 Brown & Sharpe Gear Cutter, motor drive.
- 2-No. 16 Whiton Spur and Bevel Gear Cutters.
- 2-No. 6-60" Brown & Sharpe Spur Gear Cutters.
- 1-1 1/2" capacity Landis Bolt Cutter.
- 1-4" Little Giant Pipe Machine.
- 2-No. 4 Toledo Inclined Power Presses.
- 2-No. 6 Zeh & Hahnemann Inclined Power Presses.
- 1-No. 8 Zeh & Hahnemann Percussion Press.
- 1-No. 5 Styles Back Geared Power Press.
- 1-No. 30 Bliss Arch Press.
- 1-No. 20 Bliss Press, Inclined.
- 1-No. 55 Swaine Styles Punch Press, back geared.
- 1-No. 24 Libby Turret Lathe.
- 2-No. 2 Forster Back Geared power feed Turret Lathes.
- 1-21" Gisholt D. C. Variable Speed Turret Lathe.

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37 $\frac{1}{2}$ "x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
28"x10' Niles, q. c. g.
19"x10' Draper, patent head,

15"x8' Sidney, heavy pattern, q. c. g.,
s. b. g., taper attachment.
14"x6' Springfield. Tool Room type
taper attachment.
And many others.

TURRET LATHES

34"x28" Pond, triangular pattern.
3x36" Pratt & Whitney, hollow hex.
19"x7' Fay & Scott, back grd.

No. 22 $\frac{1}{2}$ Garvin.
14"x9" Cincinnati-Acme, wire feed.
No. 2 Smurr & Kamen, wire fd., (5).

DRILL PRESSES

48" Almond, sens. radial, post type.
40" Barnes horizontal radial.

28" Aurora, sliding head.
34" Foote-Burt heavy duty.

MILLING MACHINES

No. 3 Brown & Sharpe, plain, cone
type.

No. 3 Becker-Brainard, new model,
q. c. g.

PLANERS

48"x37"x9' Sellers, 2 heads.

48"x48"x12' Gray, 2 heads.

BORING MILLS

Boring mill, No. 1 Sellers hor., 24" bar.
Boring mill, car wheel, 60" Niles.
Boring Machine, special Journal
Bearing boring type, 26"x8'
Johnson, (2).

Boring, drilling and milling ma-
chine, Bement-Miles horiz., 41"
bar, 14' 6" bet. heads, with revolv-
ing table.

MISCELLANEOUS

Arbor press, No. 3 Greenerd.
Arbor press, No. 8 Greenerd, 36"
bet. columns.
Arbor press, 20 ton Weaver.
Electric hoists, 1-ton cap. (5).
Gear shaper, No. 35 Fellows, straight
and helical heads.
Generator, No. 100 Oxweld acetyl.
Grinder, disc, No. 17 Bealy.
Grinders, double end electric.
Hammers, 15, 25 & 40 lbs. Bradley
helve.
Hammers, 50 lb. Little Giant.
Hammers, 60 lb. Bellefonte upright, 2.
Molding machines Tabor (9).
Pipe machines, 4" & 8" Eaton, Cole
& Burnham.

Punch presses, all sizes, (15).
Presses, Waterbury-Farrel d. a., 24"
5" strokes, 28" bet. housings, auto.
roller feed, with cut-off attach.,
wt. 26000 lbs., new, (3).
Punch or gate shears, 72" Cleveland
multiple, 15" throat.
Riveter, air, 6' gap Allen, cap. 14".
Riveter, air, 6' gap. Allen, cap. 8".
Saw, No. 6 Nutter & Barnes (2).
Saw and column facer, Q. M. & S.
No. 4-B universal, 31" blade.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.
Woodworking machines (5).

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- B-2184—Williams & White No. 5 Bulldozer, with steam engine.
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- B-2036—Verdin-Kappes-Verdin No. 4 Inclinable Press.
- B-1302—Mossburg & Granville No. 4-B Inclinable Fly-Wheel Press.
- B-2968—Toledo No. 3 Plain Fly-Wheel Inclinable Punch Press.
- B-2969—East Iron & Machine Co. Plain Fly-Wheel Punch Press, 5" str.
- B-884—Toledo No. 25 Upright Press, Plain Fly-Wheel Type.
- B-2889—Loshbough-Jordan No. 1 Open Back Inclinable Punch Press.
- B-2880—EMCO W Bench Plain Fly-Wheel Punch Press, $\frac{3}{4}$ " stroke.
- B-2663A—Robinson Lever Punch on legs, 18" throat.
- B-2094—Geo. C. Keene 10' Double Toggle Press Brake.
- B-1998—Geo. C. Keene 4' Hand Brake, for 18 gauge.
- B-2257A—Robinson 6' Hand Geared Brake for 14 gauge metal.
- B-2258A—Robinson 4' Light Pattern Toggle Press.
- B-2048—Heinas Power Folder or Brake, cap. 10 gauge.
- B-2269—Robinson No. 2 Hand Screw Press on legs, 6" throat.
- B-2500—D. H. Stoll Co. Power Squaring Shear Type 336, for 10 gauge.
- B-2076—Wangler Rotary Bevel Shear, for $\frac{3}{4}$ " plate.
- B-2082—Rock River Geared Power Splitting Shear, for $\frac{1}{2}$ " plate.
- B-2252A—Robinson Lever Combination Punch & Splitting Shear.
- B-2255A—Robinson Hand Lever Slitting Shear No. 57.
- B-2081—Optenburger 8" Hand Flanging Clamps for flanging $\frac{3}{8}$ " plate cold.
- B-2587—Middleditch Sprue Cutter No. V40.
- B-2511—E. J. Manville Mfg. Co. Bench Foot Press.
- B-1968—Hendley & Whittemore "Beloit" Initial Type 62" Bending Rolls.
- B-1692—Bending Rolls having three rolls approx. $4\frac{1}{4}$ " dia.
- B-2411—Bessemer 50 H. P. 2 cycle Gas Engine, 180 R. P. M.
- B-2230—Bossert Die Slotting Machine, with 12" round work table.
- B-2055—New Haven 10" Crank Slotting Machine, 24" throat.
- B-1461—Potter & Johnston No. 3 Mfg. Lathe.
- 9790—Pratt & Whitney No. 12 Profiling Machine.
- B-3006—Shuster $\frac{1}{2}$ " Wire Straightening and Cutting Machine.
- B-1594—Shuster $\frac{1}{4}$ " Riveting Machine.
- B-988—John Adt & Son Riveting Machine, $\frac{1}{8}$ " cap.
- B-2361—Miller Improved 65 H. P. 2-cylinder Horizontal Gas Engine.
- B-3090—Baker 18" Keyseater with countershaft.
- B-2438—Whiton 84" bed Double End Centering Machine.
- B-2545—Garvin No. 1 2-spindle Tapping Machine.
- B-1743—United Trip Hammer No. D-125 lb. for belt drive.
- B-2555—Little Giant 50-lb. Power Hammer for belt drive.
- B-2994—Cincinnati High Speed Tapping Machine, cap. $\frac{3}{8}$ " pipe tap.

Write for new 50 page booklet listing and pricing several hundred items of Lathes, Milling, Grinding, Buffing, Drilling, Punching, Shearing and Miscellaneous Machines.

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BRANCHES: INDIANAPOLIS, IND. HAMILTON, OHIO, DAYTON, OHIO,
LOUISVILLE, KY., COLUMBUS, OHIO

25" Niles-Bement-Pond Lathe.
22"x10' Davis Lathe.
20" Whitcomb Lathe, Q. C., Geared Head.
18"x10' Sidney Lathe, Quick Change.
14"x 8' Sidney Lathe, Quick Change.
26/48"x14' McCabe "2-in-1" Lathe.
36"x12' Geared Head Quick Change Lathe.
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24" Cincinnati B. G. Shaper.
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No. 3 Hendey Milling Machine.
No. 5 Hendey Lincoln Mfg. Type.
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4' Arm Carlton Radial Drill.
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Drill Presses—14 to 28".

8' Betts Boring Mill.
Horizontal Boring Mills 2½ to 5" bar

84"x60"x30' Planer 4 heads.
72"x72"x24' Niles Planer.
60"x60"x20' Gray Planer, 3 heads.
48"x48"x14' Pond Planer, 2 heads.
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- 2—Acme 6D Semi-Auto. Drilling.
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- 1—Barnes 26" Tapping att.
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- 1—Mechanics 24".
- 6—Cincinnati 21-26" S. S.
- 1—Rockford 21" sliding head.
- 1—Leland-Gifford 10" H.S., Sens.
- 1—Minster D No. 1.
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- 1—Pratt & Whitney 12-spindle.

Gear Shapers

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- 18—Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72.
- 13—Heald Int. Nos. 60-65-70-75.
- 1—Besly No. 14 Disc.
- 1—Besly No. 6 Dbl. End. Auto.
- 1—Gardner Disc.
- 1—Brown & Sharpe Universal.
- 2—Rivett No. 205 Radial.
- 1—Rivett Univ. No. 6 Internal.
- 2—Landis No. 3 Universal.
- 1—B. & S. No. 11 Plain Ext.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 1—Besly No. 17 double end.

Lathes—Engine—Miscellaneous

- 1—Hamilton, 16x6, B. G., Q. C.
- 5—Lodge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.
- 1—Sidney 20x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B.G., Q. C.
- 5—Greaves & Klusman 18x6, 18x8, 30x8, B. G., Q. C.
- 3—Chard 16x6&24x11 B.G., Q.C.

- 4—American 14x6, 16x6, 18x8 B. G., Q. C.

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- 1—G. & L. 18x8 B. G., Q. C.
- Sidney 14x6" B. G., Q. C., T. A.
- 1—Bradford 16" B.G., Q.C., T.A.
- 1—Monarch 16x6 B. G. Q. C.

Lathes—Turret and Screw Mchs.

- 2—Foster No. 1-B—20" swing.
- 2—Gisholt No. 2, D. M. D.
- 2—Gisholt No. H21.
- 1—Warner & Swasey No. 6.
- 2—Millholland 1" & 1½" D. M. D.
- 2—Pratt & Whitney 20".
- 1—B. & O. No. 4.

Milling Machines—Vertical

- 2—Becker No. 5 and No. 6.

Milling Machines—Horizontal

- 1—Milwaukee No. 3B Double overarm, Vertical Head.
- 1—No. 2 Cincinnati Universal.
- 1—Hendey No. 2 Universal.
- 1—Van Norman No. 1½.
- 2—Brown & S. No. 2B and 12.
- 1—Stephoe Hand with Vert. Att.
- 1—Whitney No. 6 Hand.
- 1—Garvin No. 14.

Milling Machines—Slab

- 1—Ingersoll 30x30x10", 3 heads.

Saws

- 1—Peerless 6x6.

Screw Machines—Automatic

- 1—New Britain No. 24 Muh. spdl.
- 4—Gridley ¾" 4-spindle.
- 1—Cleveland 2" S. S.
- 6—National Acme Nos. 51, 53 and 55 Multiple spindle.

Shapers—Crank

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- 1—Lodge & Davis.

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- 2—Garvin Vertical.

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- 1-4' Morris Radial.
- 1-5' Prentiss Radial.
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Keyseater, No. 2 Catlin 1/2"-2".
Lathe, 26"x48"x14" McCabe, dbl. sp.
Lathe, 26"x12" Greaves-Klusman.
Lathe, 24"x24" Schumacher-B., cone.
Lathe, 27"x30"x16" Reed-P., g. h.
Lathe, 20"x12" Hendey, q. c. g.
Lathe, 18"x10" Monarch, q. c. g.
Lathe, 16"-18"x8" L. & S., q. c. g.
Lathe, 20"x8" L. & S. select hd.
Lathe, 16"x8" L. & S. selective head.
Lathe, 16"x7" Lehmann, grd. head.
Lathe, 18"x6" Rahn-L., q. c. g., taper.
Lathe, 12"x5" Hendey, taper, draw.
Lathe, gap, 28"x48"x12" Harrington.
Lathe, turret, 14"x18", P. & W.
Lathe, turret, 2x24 J. & L.

Milling mch., No. 4GS Hendey pl.
Milling mch., No. 3 Cincinnati cone.
Milling mch., No. 2HP Milwaukee.
Milling mach., No. 3B Milwaukee.
Miller, No. 14 Garvin, vertical.
Miller, No. 3 Becker vertical.
Miller, No. 14-A Garvin plain.
Pipe machine, 8" E. C. & B., belt.
Pipe mch., 8" Saunders, belt dr.
Pipe machine, 6" Oster belt.
Pipe machine, 3" Jarecki No. 7B.
Punch, 24" L. & A. No. 4 s. c.
Punch, shear, No. 1 Buffalo Univ.
Radial drill, 6" American universal.
Radial drill, 4" Drees, s. p. d.
Radial drill, 4" Bickford, gear box.
Radial drill, 3 1/2" Mueller, cone.
Radial drill, 3 1/2" Bickford, gear box.
Radial drill, 3" Western, motor.
Saw, cold 22" blade Gleim, 6" cap.
Shaper, 24" Hendey friction.
Shaper, 20" Steptoe, back geared.
Shaper, 16" Smith & Mills b. g.
Shear, 8"x3/16" Niagara No. 796.
Shear, 52"x16 gauge Niagara No. 552.
Turret lathes, 2A Warner & S. (3).
Turret lathes, No. 1B Foster univ. (2).
Welder, 15 k.w. Thomson auto. spot.
Wheel press, 200 ton Putnam hydr.

Bennett Machinery Co.

30 Church St.,

New York City

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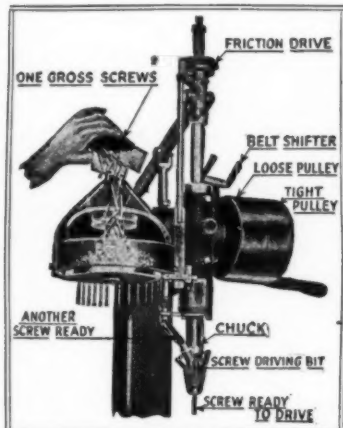
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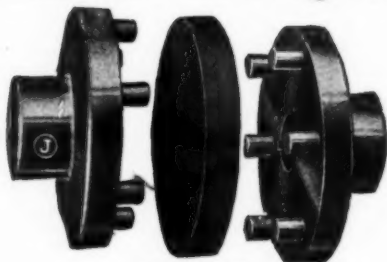
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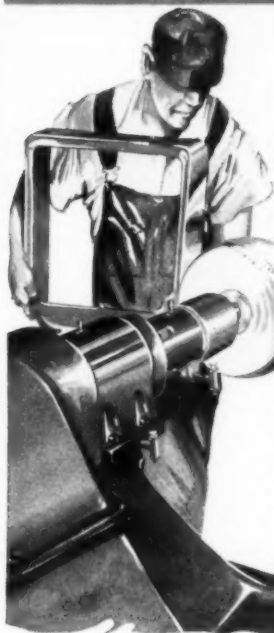
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